Imperial County Planning & Development Services
Planning / Building

Jim Minnick
DIRECTOR

March 22, 2021

SUBJECT: **REQUEST FOR PROPOSAL – CONSTRUCTION MONITORING & COMPLIANCE**
PROJECT: Wister Solar Energy Facility
CUP's #18-0040 & CUP#20-0006/APN 003-240-001-000

Consultants:

The Imperial County Planning & Development Services Department (ICPDS) is soliciting proposals for the third party monitoring and compliance on the Wister Solar Energy Facility Project. **Proposals will be accepted from March 22, 2021 until April 22, 2021; any proposals received after April 22, 2021 will not be considered**. ICPDS will act as the "Lead Agency" during the Pre-construction, construction phase, and operational phase of this project. The successful consultant will work directly for ICPDS on the following phases:

1. The Laydown Phase which will allow for solar equipment to be delivered within the development area;
2. The initial Move On Phase where construction trailers and equipment will be used for construction;
3. The Pre-Construction Phase including all reports;
4. The Full Development Phase for the installation of the solar panels, & substations, and
5. The ongoing Operational Monitoring Phase, as required in the Conditional Use Permits and Mitigation Monitoring Reporting Programs.

ICPDS is requesting a Statement of Interest; this must consist of a Statement of Qualifications and a Schedule of Charges from organizations interested in providing a Third Party Environmental Inspector (TPEI) and related environmental compliance services.

The TPEI consultant will be requested by the Lead Agency to coordinate with the **Wister Solar Energy Facility Project** Owner, staff, and Imperial County agencies regarding environmental construction compliance and monitoring activities.

The intent is to inspect, monitor, and verify implementation of Imperial County approved Conditions of Approval and mitigations as shown in the Mitigation Monitoring & Reporting Program during Pre-construction activities and development of project.

Attached hereto is a copy of the Final Environmental Impact Report, Conditional Use Permit (CUP) agreements and the Mitigation, Monitoring and Reporting Programs (MM&RP) for the **Wister Solar Energy Facility Project**

ICPDS hereby requests the project scope and cost associated with all of the Tasks identified on the attached MM&RP and CUP's:

a. Costs for monitoring the Developer's construction crews including, but not limited to, the EPC contractor, electrical contractors, and subcontractors including the grading for each site. Please include the hourly rate and the total estimated hours for monitoring;

b. Costs for writing compliance reports for the **Wister Solar Energy Facility** project; please include the hourly rate and the cost for the weekly compliance report.

c. Conducting onsite monitoring and documenting whether the Project is in compliance with the conditions of the County permits; please provide the hourly rate.

d. Cost for attending meetings with the Contractor, State Agencies, or Local Agencies on site or via phone conference as needed, as well as writing reports documenting these meetings; please provide the hourly rate and the total estimated hours.

e. Cost for training and maintaining a Workers Environmental Awareness Program (WEAP) training for all workers and contractors working on site during Pre-construction & construction activities.

A Statement of Interest must also include resumes for the proposed cultural resource, paleontological resource, and biological resource specialists that may be needed on site. State Agency approval may be required.

The proposed hourly/daily billing rate, travel billing rate, mileage billing rate, proposed per diem (if any), and expected round-trip miles to be billed for visits to the **Wister Solar Energy Facility Project**. The project construction is estimated to be completed in one (1) year.

The construction is expected to start towards the end of the 2020 quarter or the first quarter of 2021; however, the duration of the contract will be determined based on the Scope of Work and negotiated with ICPDS.

If you have any questions, you may contact Patricia Valenzuela, Planner IV, by phone at (442) 265-1736, extension 1749 or by email at patriciavalenzuela@co.imperial.ca.us.

Sincerely,

Jim Minnick, Director
Imperial County Planning & Development Services

Attachments: FEIR for **Wister Solar Energy Facility Project**
CUP Agreements #18-0040 & CUP20-0006
Mitigation Monitoring & Reporting Program (MMRP)

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Final Environmental Impact Report

Wister Solar Energy Facility Project

SCH No. 2019110140

Imperial County, California

December 2020

Prepared for

County of Imperial

801 Main Street

El Centro, CA 92243

Prepared by

HDR

591 Camino de la Reina

Suite 300

San Diego, CA 92108

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Appendices

Acronyms

°F	degrees Fahrenheit
AB	Assembly Bill
ABPP	avian and bat protection plan
AC	alternating current
AF	acre-feet
AFY	acre-feet per year
ALUCP	Airport Land Use Compatibility Plan
amsl	above mean sea level
AP	Alquist-Priolo
APLIC	Avian Powerline Interaction Committee
APN	assessor parcel number
AQAP	air quality attainment plan
AQMP	air quality management plan
AQUA	aquaculture
AST	aboveground storage tank
BAU	business as usual
BBCS	Bird and Bat Conservation Strategy
BLM	Bureau of Land Management
BMP	best management practice
BP	Before present
BSA	biological survey area
BRTR	Biological Resources Technical Report
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFÉ	Corporate Average Fuel Economy
Cal EPA	California Environmental Protection Agency
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCH	Consortium of California Herbaria
CCR	California Code of Regulations
CDFA	California Department of Food Agriculture
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CHRIS	California Historical Resources Information System
CMP	congestion management program
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	Imperial County
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
CUP	conditional use permit
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel

DC	direct current
DDT	Dichlorodiphenyltrichloroethane
DOC	Department of Conservation
DRECP	Desert Renewable Energy Conservation Plan
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FGC	Fish and Game Code
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMMP	farmland mapping and monitoring program
FRSH	freshwater replenishment
FTA	Federal Transit Administration
GHG	greenhouse gas
GIS	Geographic Information System
GPS	Global Positioning System
GWP	global warming potential
H	High
HCP	habitat conservation plan
HFC	hydrofluorocarbon
HSC	Health and Safety Code
HU	hydrological unit
Hz	hertz
ICAPCD	Imperial County Air Pollution Control District
ICFD	Imperial County Fire Department
ICPDS	Imperial County Planning and Development Services Department
IEEE	Institute of Electrical and Electronics Engineers
IGR	Intergovernmental Review
IID	Imperial Irrigation District
IND	industrial service supply
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Plan
IRWMP	Integrated Regional Water Management Plan
IS	Initial Study
IVAG	Imperial Valley Association of Governments
IVC	Imperial Valley College
IVT	Imperial Valley Transit
IWSP	Interim Water Supply Policy
KOP	key observation point
kV	kilovolt
kW	kilowatt
L	low
LCFS	low carbon fuel standard
L_{dn}	day-night average sound level
LE	land evaluation
L_{eq}	equivalent sound level
LESA	land evaluation site assessment
L_{max}	maximum noise level
LOS	level of service
M	moderate
MBTA	Migratory Bird Treaty Act
MEER	Mechanical and Electrical Equipment Room
MH	moderately high

MHMP	Multi-Hazard Mitigation Plan
ML	moderately low
MLD	most likely descendant
MMT	million metric tons
$MMTCO_2e$	million metric tons of CO_2 equivalent
MPO	metropolitan planning organization
MS4	Municipal Separate Storm Sewer System
MSL	mean sea level
MT	metric tons
MW	megawatt
MWh	megawatt hours
N/A	not applicable
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	natural community conservation plan
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NGO	nongovernmental organizations
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
No.	Number
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
NOI	Notice of Intent
NOP	notice of preparation
NPDES	National Pollution Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	operations and maintenance
O_3	ozone
OES	Office of Emergency Services
OHP	Office of Historic Preservation
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
Pb	lead
PCB	polychlorinated biphenyls
PCS	Power Conversion Station
PFC	perfluorocarbon
pH	potential of hydrogen
Phase I ESA	Phase I Environmental Site Assessment
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
POI	Point of Interconnection
POW	hydropower generation
PPA	power purchase agreement
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
PSD	Prevention of Significant Deterioration
PV	photovoltaic
RARE	Preservation of Rare, Threatened, or Endangered Species
RCP	Regional Comprehensive Plan

RE	renewable energy
REC	Renewable-Energy Credits
REC I	water contact recreation
REC II	non-contact water recreation
RECUP	Renewable Energy Conditional Use Permit
ROG	reactive organic gas
ROW	right-of-way
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RV	recreational vehicle
RWQCB	Regional Water Quality Control Board
SA	site assessment
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCIC	South Coastal Information Center
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SLF	sacred lands file
SO_2	sulfur dioxide
SO_x	sulfur oxide
SPCC	Spill Prevention, Control, and Countermeasure
SR	State Route
SSAB	Salton Sea Air Basin
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
tCO2e	tonnes of carbon dioxide equivalents
TMDL	total maximum daily load
TSS	total suspended solids
U.S.	United States
UNFCCC	United Nations Framework Convention on Climate Change
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USMC	United States Marine Corps
UST	underground storage tank
V/C	volume to capacity
VOC	volatile organic compound
WARM	warm freshwater habitat
WILD	wildlife habitat
WSA	Water Supply Assessment
$\mu g/m^3$	microgram per cubic meter

0.1 Introduction and Summary

This Final Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) as amended (Public Resources Code Section 21000 et seq.), and CEQA Guidelines (California Administrative Code Section 15000 et seq.).

According to CEQA Guidelines §15132, the Final EIR shall consist of the following:

a. The Draft EIR or a revision of the Draft;

b. Comments and recommendations received on the Draft EIR, either verbatim or in summary;

c. A list of persons, organizations, and public agencies commenting on the Draft EIR;

d. The responses of the Lead Agency to significant environmental points raised in the review and consultation process; and

e. Any other information added by the Lead Agency.

In accordance with these requirements, the Wister Solar Project Final EIR is comprised of the following:

- Draft EIR, June 2020 (SCH No. 2019110140); and
- This Final EIR document, dated December 2020, that incorporates the information required by §15132.

Format of the Final EIR

Section 0.1 Introduction

This section describes CEQA requirements and content of this Final EIR.

Section 0.2 Responses to Comment Letters Received on the Draft EIR

This section provides copies of the comment letters received and individual responses to written comments. In accordance with Public Resources Code 21092.5, copies of the written proposed responses to public agencies will be forwarded to the agencies at least 10 days prior to certifying the EIR. The responses conform to CEQA Guideline 15088, providing "… good faith, reasoned analysis in response."

Section 0.3 Errata to the Draft EIR

This section of the Final Environmental Impact Report (EIR) identifies the location of, or contains revisions to, information included in the Draft EIR dated June 2020, based upon additional or revised information required to prepare a response to a specific comment. The information added to the EIR does not meet the requirements for recirculation pursuant to Section 15088.5 of the State *California Environmental Quality Act (CEQA) Guidelines*.

Section 0.4 Mitigation Monitoring and Reporting Program

This section includes the Mitigation Monitoring and Reporting Program (MMRP) which identifies the mitigation measures, timing, and responsibility for implementation of the measures.

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0.2 Response to Comments

This section contains responses to all comment letters received on the Draft EIR. Seven letters were received during the comment period, which began on June 30, 2020, and closed on August 18, 2020. A copy of each letter with bracketed comment numbers on the right margin is followed by the response for each comment as indexed in the letter. The comment letters are listed in Table 0.2-1.

Table 0.2-1. Wister Solar Energy Facility Project Draft EIR Comment Letters

Letter	Commenter	Date
A	United States Marine Corps	August 13, 2020
B	Department of Transportation	August 18, 2020
C	Imperial County Air Pollution Control District	July 29, 2020
D	Imperial County Sheriff's Office	July 24, 2020
E	Stantec	August 4, 2020
F	Adams Broadwell Joseph & Cardozo	August 14, 2020
G	Imperial Irrigation District	October 8, 2020 August 18, 2020
H	Imperial County Fire Prevention Bureau	May 27, 2020[1]

Notes:
[1] Received prior to commencement of the Draft EIR public review period.

UNITED STATES MARINE CORPS
MARINE CORPS AIR STATION YUMA
BOX 99100
YUMA AZ 85369-9100

5726
CP&L
SCH 2019110140
August 13,2020

Ms. Patricia Valenzuela
Imperial County Planning and
Development Services
801 Main Street
El Centro, CA 92243

Dear Ms. Valenzuela:

We have received the Notice of Availability of a Draft Environmental Impact Report for the Wister Solar Energy Facility Project. The project site is identified as Assessor's Parcel No 003-240-001 located approximately three miles north of Niland, the Chocolate Mountain Aerial Gunnery Range (CMAGR), and Camp Billy Machen desert warfare training facility. The proposed project involves the construction and operation of a 20 Megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres of the 640 acres within the identified APN. A.1

Marine Corps Air Station (MCAS) Yuma has reviewed this request, and does not oppose to this project. It is requested that if a glint/glare analysis has been completed, please provide a copy to MCAS Yuma. In addition, due to continuous military flight operations, we request lights are placed on towers above 20 feet Above Ground Level (AGL). A.2

Thank you for the opportunity to review and provide MCAS Yuma's comments. MCAS Yuma point of contact is Mr. Antonio Martinez at (928) 269-2103 or MCASYUMA_CPLO@usmc.mil. Thank you for the opportunity to comment. A.3

Sincerely,

MARY E. FINCH
By direction

Letter A

United States Marine Corps

August 13, 2020

A.1 This is an introductory comment and provides a general summary of the project characteristics. No further response is necessary.

A.2 The County acknowledges that the Marine Corps does not express opposition to the project. Additionally, the County acknowledges the Marine Corps review and consideration of the project in relation to the Chocolate Mountain Aerial Gunnery Range (CMAGR) and Camp Billy Machen desert warfare training facility.

During the initial planning and entitlement processing for the project, the project applicant coordinated with Bill Sellars, Director, MCAS Yuma Range Management to address the project's potential visual impacts to the CMAGR. A Glare Hazard Analysis Report was prepared and provided as Appendix C of the Draft EIR. The analysis is based on the flight path as requested by the USMC during initial applicant consultation/coordination with USMC. Draft EIR Appendix C Figure 1 depicts the flight path assumed for the glare hazard analysis. This report is also provided as part of the Final EIR transmitted to the USMC, and is also available on the County's website at: www.icpds.com. Glare is not predicted for the USMC flight path from approximately one (1) to three (3) Nautical Miles east of the target with a heading of 270 deg at an altitude of 5,500' MSL as shown in Figure 1 (also see EIR Figure 3.2-4 Flight Path Analysis).

Transmissions towers exceeding 20 feet above ground level will be designed to include appropriate aviation warning lighting. As shown in EIR Section 2 Project Description (see Figure 2-3), the proposed gen-tie line would originate at the proposed Wister substation and would terminate at the point of interconnect (POI), at a distance of approximately 2,500 feet to the south-southwest. Steel poles, standing at a maximum height of 70 feet tall, will be spaced approximately every 300 feet along the route, and would support the 92-kV conductor to the POI.

A.3 Comment noted.

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY Gavin Newsom, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 11
4050 TAYLOR STREET, MS-240
SAN DIEGO, CA 92110
PHONE (619) 688-6075
FAX (619) 688-4299
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

August 18, 2020

11-IMP-111
PM 41.3
Wister Solar Energy Facility
DEIR/SCH# 2019110140

Ms. Patricia Valenzuela
Imperial County
Planning and Development Services
801 Main Street
El Centro, CA 92243

Dear Ms. Valenzuela:

Thank you for including the California Department of Transportation (Caltrans) in the review of the Wister Solar Energy Facility Draft Environmental Impact Report (DEIR) (SCH# 2019110140) located near State Route 111 (SR-111). The mission of Caltrans is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. The Local Development-Intergovernmental Review (LD-IGR) Program reviews land use projects and plans to ensure consistency with Caltrans' mission and state planning priorities. B.1

Caltrans has the following comments:

Traffic Control Plan/Hauling

Terra-Gen shall prepare and submit to Caltrans closure plans as part of the encroachment permit application. The plans shall require that closure or partial closure of SR-111 be limited to times as to create the least possible inconvenience to the traveling public and that signage be posted prior to the closure to alert drivers of the closure in accordance with Caltrans requirements. Traffic shall not be unreasonably delayed. The plan shall also outline suggested detours to use during the closures, traffic, including routes and signage. B.2

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Ms. Patricia Valenzuela
August 18, 2020
Page 2

The Highway Closure Plan, as part of the encroachment permit, should be submitted to Caltrans at least 30 days prior to initiating installation of the crossings. No work shall begin in Caltrans Right of Way (R/W) until an encroachment permit is approved.

B.2, cont.

Any work performed within Caltrans R/W will require discretionary review and approval by Caltrans and an encroachment permit will be required for any work within the Caltrans R/W prior to construction. As part of the encroachment permit process, the applicant must provide an approved final environmental document including the California Environmental Quality Act (CEQA) determination addressing any environmental impacts with the Caltrans' R/W, and any corresponding technical studies.

Please see Section 600 of the Encroachment Permits Manual for requirements regarding utilities and state R/W: https://dot.ca.gov/programs/traffic-operations/ep/ep-manual

B.3

Caltrans has discretionary authority with respect to highways under its jurisdiction and may, upon application and if good cause appears, issue a special permit to operate or move a vehicle or combination of vehicles or special mobile equipment of a size or weight of vehicle or load exceeding the maximum limitations specified in the California Vehicle Code. The Caltrans Transportation Permits Issuance Branch is responsible for the issuance of these special transportation permits for oversize/overweight vehicles on the State Highway System. Additional information is provided online at: http://www.dot.ca.gov/trafficops/permits/index.html

Potential impacts to the highway facilities (SR-111) and traveling public from the detour, demolition and other construction activities should be discussed and addressed before work begins.

B.4

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

If you have any questions, please contact Mark McCumsey, of the Caltrans Development Review Branch, at (619) 688-6802 or by e-mail sent to mark.mccumsey@dot.ca.gov. B.5

Sincerely,

electronically signed by

MAURICE EATON, Branch Chief
Local Development and Intergovernmental Review Branch

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Letter B

Department of Transportation

August 18, 2020

B.1 This is an introductory comment and provides a general summary of the project characteristics. No further response is necessary.

B.2 The County acknowledges Caltrans encroachment permit requirements summarized in this comment. However, this comment references a different project (i.e., the Terra-Gen project). With respect to the proposed Wister Solar Project, no development or construction activities (including closures to SR-111 as referenced in this comment) is proposed or would otherwise be required in order to construct the proposed project. All project work will be performed along County and IID roadways.

B.3 No work within Caltrans right of way is proposed associated with the proposed project. However, the County does acknowledge that any work performed within Caltrans right of way requires approval of an encroachment permit.

B.4 The County acknowledges that a special transportation permit would be required for any oversize/overweight vehicles exceeding the maximum limitations specified in the California Vehicle Code. Although not anticipated at this time, the Applicant will apply for a special transportation permit, should it be determined that special vehicle construction equipment will be required that would exceed maximum limitations specified in the California Vehicle Code.

Please also refer to response to comment B.3. No encroachment into SR-111 right of way, or other Caltrans facilities will be required for project implementation.

B.5 Comment noted.

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

July 29, 2020

Mr. Jim Minnick
Planning & Development Services Director
801 Main St.
El Centro, CA 92243

SUBJECT: Draft Environmental Impact Report (EIR) for the Wister Solar Energy Facility

Dear Mr. Minnick:

The Imperial County Air Pollution Control District (Air District) appreciates the opportunity to review and comment on the Draft EIR (DEIR) for the Wister Solar Energy Facility (Project). The Project involves 1) the construction and operation of a 20-Megawatt photovoltaic solar energy facility including a substation and access roads; 2) a gen-tie line to connect the proposed on-site substation to the existing Imperial Irrigation District's 92-kilovolt "K" line; and 3) nearly two miles of fiber optic telecommunications cable from the proposed on-site substation to the existing Niland substation. C.1

The Air District reviewed the DEIR for adherence to prior comments[1] and for the most part found the DEIR consistent in addressing those remarks, with the following exceptions. Among these are the exclusion of Appendix A containing CalEEMod output files as referenced in Impact AQ-2 of Appendix D—Air Quality Technical Study.[2] These files should be provided in the Final EIR for disclosure purposes.

Mitigation measures as discussed in AQ-1 of the Executive Summary and Air Quality Section 3.3-17 discuss the periodic submission of an offroad equipment list for NOx evaluations, but do not discuss this in the context of Policy 5 should construction emissions exceed thresholds of significance. Policy 5 mitigation needs to be included in the proposed mitigation measures of the Executive Summary. Finally, the Air District requests that the Conditional Use Permit contain the NOx evaluation with the submittal of the periodic equipment list and the Operational Dust Control Plan (ODCP) as conditions for this Project. C.2

[1] 2nd Administrative Draft Environmental Impact Report (EIR) for the Wister Solar Energy Facility. Imperial County Air Pollution Control District. 3 June 2020.
[2] Air Quality Technical Study for the Wister Solar Facility Project Imperial County, California. Stantec Consulting Services. Section 5—Impact Analysis. 24 June 2020. Pg. 31.

Should you have questions, please call the Air District offices at (442) 265-1800.] C.3

Respectfully submitted,

Curtis Blondell

Curtis Blondell
APC Environmental Coordinator

Reviewed by Monica Soucier
APC Division Manager

Letter C

Imperial County Air Pollution Control District

July 29, 2020

C.1 The introductory comments including general summary of the project characteristics are acknowledged.

The County provided Appendix A (CalEEMod output files) to the Imperial County Air Pollution Control District (ICAPCD) within 24 hours of ICAPCD's request during the 50-day Draft EIR public review period.

Regarding the availability of Appendix A (CalEEMod output files) as part of Draft EIR Appendix D, as indicated in the Notice of Availability, the appendices to Appendix D were made available on file at the County Planning and Development Services Department during the 50-day Draft EIR public review period. The Draft EIR and appendices were available in both hard copies and CDs to the public on request to the County during the review period. Public Resources Code Section 21092 and CEQA Guidelines Section 15087 only require notice of where and how the public can access the documents, and the County is in substantial compliance with CEQA as required by Public Resources Code Section 21092(b)(2).

Appendix A to Appendix D of the EIR is included in the Final EIR document.

C.2 Consistent with ICAPCD Policy 5, Mitigation Measures AQ-1 Construction Equipment, requires that a list of the construction equipment, including all off-road equipment utilized at each of the projects by make, model, year, horsepower and expected/actual hours of use, and the associated EPA Tier shall be submitted to the County Planning and Development Services Department and ICAPCD prior to the issuance of a grading permit.

This measure also requires that the equipment list shall be submitted periodically to ICAPCD to perform a NOx analysis. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed significance thresholds. Based on the Draft EIR air quality analysis, NOx emission thresholds are not anticipated to be exceeded (please see EIR Table 3.3-8, page 3.3-16). However, if the ICAPCD's NOx analysis indicates exceedances of the thresholds, the Project exceedances would be mitigated pursuant to Policy 5.

Mitigation Measure AQ-1 as well as the requirement to prepare and submit the Operational Dust Control Plan (ODCP) (Mitigation Measure AQ-2) and other measures for dust control required by Mitigation Measures AQ-3 and AQ-4 will be incorporated into the conditions of approval required as part of the Conditional Use Permit (CUP) for the project.

C.3 Comment noted.

July 24, 2020

Imperial County Planning and Development Services
Patricia Valenzuela, Planner IV
801 Main Street
El Centro, Ca. 92243
RE: Draft Environmental Report for the Wister Solar Energy Facility Project

Ms. Valenzuela,

The Imperial County Sheriff's Office is the chief law enforcement agency in Imperial County. The Sheriff's Office provides general law enforcement, detention and court services for the residents, business owners and visitors of Imperial County. We have a service area of approximately 4,597 square miles bordering on Mexico to the South, Riverside County to the North, San Diego County on the West, and the State of Arizona on the East. The terrain varies from 235 feet below sea level at the Salton Sea to 4,548 feet at Blue Angel Peak. In addition, the Sheriff's Office maintains substations in the surrounding areas and communities of Brawley, Palo Verde, Niland, Salton City, and Winterhaven.

The proposed project site is located approximately 3 miles northeast of the Niland Substation (300 E 1st St). The Niland Substation is a satellite office which North County Patrol (Brawley Station) officers utilize in the course of their duties. 13 deputies and 4 Sergeants normally patrol the Niland area while only one deputy is generally assigned to the Niland "beat" on any given shift. This staffing allows the North County Patrol Station to provide a minimum of 2 deputy sheriff's on duty 24 hours per day, 7 days per week.

D.1

Due to the road system inside this parcel, and the public safety need to access this property in all types of weather, the sheriff's office would request funding for a marked and equipped four wheel drive patrol vehicle. The cost is approximately $70,000. This equates to roughly $700 per acre. This mitigation measure will be required for the sheriff's office to provide services.

D.2

The projects on-site security equipment such as 8 foot high fencing with barbed wire around the perimeter, with lighting and remotely monitored closed circuit camera system will assist greatly in mitigating our needs. However, if alarmed, the project applicant would be required to obtain an alarm permit from the sheriff's office to be in compliance with County Ordinance 8.04.040. Fees for the alarm permit are covered under **County Ordinance 8.04.070** and are as follows:

Alarm permit	**$22.00**
Alarm permit renewal	**$22.00**
First reissued permit in original two-year period:	**$50.00**
Second reissued permit in original two-year period:	**$100.00**

D.3

Third reissued permit in original two-year period: **$200.00**
Fourth and additional reissued permit in original two-year period: **$500.00**

Multiple alarm permit fees are based on the single alarm fee of twenty-two dollars ($22.00) for up to five alarm systems at one location. Regardless of the number of permits, the total fee shall not exceed five times the single permit fee for any one location.

D.3, cont.

In looking at other similar projects throughout the County, we have seen an increase in calls for service to those areas, especially during the construction phase. The sheriff's office feels that this project would create a significant impact and have a cumulatively considerable effect on our station should similar type of calls for service arise. If there is an increase for calls for service as a result of this project and the sheriff's office maintains its current personnel allocations, funding and equipment, service levels may drop below acceptable levels or industry standards.

D.4

Letter D
Imperial County Sheriff's Office

July 24, 2020

D.1 This is an introductory comment that summarizes the sheriff's services in Imperial County and provides a general summary of the project characteristics. No further response is necessary.

D.2 As discussed in the Initial Study prepared for the project (see EIR Appendix A), as well as EIR Section 6 Effects Found Not Significant, it is recognized that although the potential is low, the proposed project could attract trespassers or other unauthorized uses. The increase in construction related traffic could temporarily increase demand on law enforcement services. However, the project site would be fenced with 6-foot high chain link security fence topped with barbed wire and points of ingress/egress would be accessed via locked gates. In addition, periodic on-site personnel visitations for security would occur during operations and maintenance of the proposed project, thereby minimizing the need for police surveillance.

It should be noted that project conditions of approval (COA's) include participation in public financing that can contribute to the purchase of a new vehicle or equipment. Project COA's include the following:

- The Permittee shall install and implement security measures which may include, but not limited to, secured perimeter fencing and barbed wire, sensors, with controlled access points, security alarms, security camera systems, security guard vehicle patrols to deter trespass or unauthorized activities that would interfere with operation of the proposed project.
- Permittee shall participate in the Imperial County Public Benefit Program for the life of this CUP and shall at all times be a party to a public benefit agreement in a form acceptable to County Counsel in order to pay for all costs, benefits, and fees associated with the approved project. Approval of this public benefit agreement will be by the Board of Supervisors prior to the issuance of the first building permit.
- The Permittee shall reimburse the Sheriff's Department for any investigations regarding theft on the Project site and related law enforcement.

The environmental impact associated with any increase in law enforcement patrols has been determined to be a less than significant impact. The conclusion is based on the CEQA Guidelines threshold which states: "Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services." With respect to the Wister Solar Project, the project would not result in a physical impact to the environment associated with the provision of new or physically altered law enforcement services. While the sheriff's comment indicates that an all-terrain vehicle would be needed in order to patrol the project site, the fenced and secure project does not result in an increase in demand on law enforcement that would require existing or new facilities to be upgraded in order to maintain service ratios, which would, in turn, result in a physical impact to the environment.

EIR pages ES-5 and 6-4 have been revised as follows to clarify this conclusion:

Police Protection. Police protection services in the project area is provided by the Imperial County Sheriff's Department. Although the potential is low, the proposed project ~~may~~ could attract ~~vandals~~ trespassers or other ~~security risks~~ unauthorized uses. The increase in construction related traffic could temporarily increase demand on law enforcement services. However, the project site would be fenced with a 6-foot high chain link security fence topped with barbed wire and points of ingress/egress would be accessed via locked gates. In addition, periodic on-site personnel visitations for security would occur during operations and maintenance of the proposed project, thereby minimizing the need for police surveillance. While the proposed project may result in a~~n~~ temporary increase in demand for law enforcement service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered sheriff 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. The sheriff's department has indicated that an all-terrain vehicle would be needed in order to patrol the project site; however, the fenced and secure project site does not result in an increase in demand on law enforcement that would require existing or new facilities to be upgraded in order to maintain service ratios. Further, as conditions of approval of the project, the project applicant will be required to participate in the Imperial County Public Benefit Program for the life of this CUP and shall at all times be a party to a public benefit agreement in a form acceptable to County Counsel in order to pay for all costs, benefits, and fees associated with the approved project, and the applicant will be required to reimburse the Sheriff's Department for any investigations regarding theft on the Project site and related law enforcement. Approval of this public benefit agreement will be by the Board of Supervisors prior to the issuance of the first building permit. ~~This~~ These potential impacts are less than significant. ~~is considered a less than significant impact.~~

D.3 The County acknowledges that if the applicant obtains an alarm permit through the sheriff's office, the applicant would be responsible for payment of applicable alarm permit fees per County Ordinance 8.04.070.

D.4 Please refer to preceding responses to comments D.1 through D.3.

Stantec Consulting Services Inc.
290 Conejo Ridge Avenue, Thousand Oaks CA 91361-4972

August 4, 2020
Project: Wister Solar Energy Facility Project

Attention: Patricia Valenzuela
Planner IV
Imperial County Planning & Development Services
801 Main Street
El Centro, CA 92243
442-265-1749

Reference: Draft Environmental Impact Report SCH No. 2019110140

Dear Mrs. Valenzuela,

Stantec Consulting Services Inc. (Stantec), as the designated environmental consultant on behalf of ORNI 33, LLC, the applicant of the proposed Wister Solar Energy Facility Project (Project), has prepared the following comment letter in response to Draft Environmental Impact Report SCH No. 2019110140.

The proposed Project site occurs on the western margin of the known range of the federally and state threatened Mojave Desert tortoise (*Gopherus agassizii*). Federally designated critical habitat for the Mojave Desert tortoise occurs approximately 4-miles northeast of the Biological Survey Area (BSA), which includes the Project footprint and a 500-foot buffer. Marginally suitable habitat for this species exists within and adjacent to the BSA. However, according to California Natural Diversity Database (CNDDB), the nearest recorded occurrence to the BSA is approximately 4.3 miles to the northeast.

Indirect and direct impacts are described within the Draft Environmental Impact Report (DEIR) prepared by HDR Consulting. Direct impacts initially identified in the DEIR describe that if tortoises are present or within the vicinity of the Project site, then grading and vehicular traffic could potentially crush and kill individual tortoises. In addition, they could potentially become trapped in open trenches and could be killed due to an increased exposure to predators or extreme weather. E.1

The DEIR also initially describes the potential indirect impact, in which disturbed lands associated with construction and grading of the proposed Project may no longer provide viable long-term habitat for the Mojave Desert tortoise. The Project's solar field, substation, and new access roads are considered a direct impact that could cause the long-term loss of 115.4 acres of potential habitat. Indirect impacts of construction could include an increase in desert tortoise predators such as ravens and crows that may be drawn to the Project site by ground disturbing activities that expose wildlife and produce carcasses and waste for scavenging. Trash or carcass remains could also increase the presence of scavengers, which may prey on other species' eggs or juveniles. In addition, infrequent panel washing could change drainage patterns or transport pollutants or sediment off-site where it may adversely impact downstream aquatic resources.

Therefore, to fully mitigate for habitat loss and potential take of the Mojave Desert tortoise, the DEIR initially established a compensatory mitigation at a ratio of 3:1. However, based on Stantec's further review of the Project, we recommend a 1:1 compensatory mitigation ratio for Mojave Desert tortoise given the following reasons: E.2

Reference: **Draft Environmental Impact Report SCH No. 2019110140**

- Although there is designated critical habitat and the nearest recorded occurrence approximately four miles northeast, the Coachella Canal, located approximately 0.8 mile to the northeast of the Project site, provides a substantial barrier to tortoise movement. E.2a
- Stantec recommends the applicant establish a conservation easement within the southwest section of their privately owned parcel (APN 003-240-001), which has the highest quality habitat available to preserve. E.2b
- Stantec recommends the conservation easements be increased to 115.4 acres to mitigate for potential impacts to Mojave Desert tortoise, Blue Palo Verde Ironwood – Woodland, and waters. Therefore, compensatory mitigation ratios for Blue Palo Verde Ironwood – Woodland and waters would significantly increase from the original 3:1 and 1:1 ratios, respectively. E.2c

We appreciate the opportunity to provide comment on the Wister Solar Energy Facility DEIR. If you have any further questions, please feel free to give us a call. E.3

Regards,

Stantec Consulting Services Inc.

Jared Varonin
Principal Biologist/Ecosystems Practice Leader
Phone: 805.358.7696
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c. Tim Gnibus, HDR Consulting

Design with community in mind

Letter E

Stantec

August 4, 2020

E.1 This comment summarizes information presented in Draft EIR Section 3.4 Biological Resources. The information summarized in this comment is consistent with the information contained in the Draft EIR.

E.2 As stated on Draft EIR page 3.4-33, Mitigation Measure BIO-4, Desert Tortoise Avoidance and Minimization, a qualified biologist shall conduct focused presence/absence surveys for Desert Tortoise for 100-percent of the project footprint pursuant to the October 19, 2019 Version of the USFWS Desert Tortoise Survey Protocol. If no live desert tortoise or sign of active desert tortoise if detected, no further avoidance and minimization is required. Per Mitigation Measure BIO-4, the recommended 3:1 mitigation ratio for habitat loss would only apply should presence of the tortoise be determined through the presence/absence surveys. However, please refer to responses to comments E.2a through E.2c regarding the quality of habitat and proposed compensatory mitigation ratio if live or active desert tortoise is detected on-site.

E.2a This comment is acknowledged and consistent with the Draft EIR analysis provided on page 3.4-41, which states that the project site is not situated within is significant dispersal corridor. In fact several north-south trending features already disrupt east to west movement including SR 111, Coachella Canal and East Highline Canal. Local North-South movement can continue east of the project.

E.2b Comment noted. As noted in this comment, quality habitat is located in the southern portions of the entire 640-acre parcel. Disturbance to this habitat was largely avoided at the time the project was redesigned and reduced in size from the originally-submitted site plan, which proposed a 40 megawatt facility on approximately 300 acres. The southern area would be biologically suitable for establishment of a conservation easement.

E.2c Establishment of a conservation easement on the southern portion of the property in the amount of 115.4 acres, which would address Blue Palo Verde Ironwood-Woodland and waters; would be considered appropriate mitigation for desert tortoise as well with consideration of the marginal habitat located in the portion of the project site proposed for development, as well as the limited biological connectivity of the northern portion of the site as addressed in response to comment E.2a. As such, Mitigation Measure BIO-4 has been revised as follows:

- To fully mitigate for habitat loss and potential take of the Mojave desert tortoise, the Applicant will provide compensatory mitigation at a ratio of ~~3:1~~ 1:1. For the purposes of this measure, the project site (i.e., footprint) means all Project areas with new direct ground disturbance during construction and operation of the Project. This includes all lands directly disturbed that will no longer provide viable long-term habitat for the Mojave desert tortoise, such as the solar field, substation and new access roads. Areas within the gen-tie line corridor where no ground disturbance will occur are not included in the area to be mitigated through compensation. Compensatory mitigation could include agency-approved payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on preservation lands; or a combination of the three.

E.3 Comment noted.

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Of Counsel

*Admitted in Colorado

August 14, 2020

RECEIVED
AUG 19 2020
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

VIA EMAIL AND U.S. MAIL

Patricia Valenzuela, Planner IV
Planning & Planning and Development Services Department
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Email: PatriciaValenzuela@co.imperial.ca.us

Re: **Comments on Ormat Wister Solar Energy Facility Project Draft Environmental Impact Report (SCH No. 2019110140)**

Dear Ms. Valenzuela:

We are writing on behalf of Citizens for Responsible Solar to provide comments on the Draft Environmental Impact Report ("DEIR") prepared by Imperial County ("County") for the Wister Solar Energy Facility Project ("Project"), State Clearinghouse Number 2019110140. The Project, proposed by Orni 21, LLC ("Applicant"), would include the construction and operation of a solar photovoltaic ("PV") power generating facility and associated facilities, including a substation and access roads, that would generate a combined total of approximately 20 megawatts ("MW") of renewable electrical energy on approximately 100 acres of private land in Imperial County. The Project will also include the installation of a gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing Imperial Irrigation District's (IID) 92-kilovolt (kV) "K" line site and a fiberoptic cable. The Project is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County. F.1

The Applicant is seeking (a) a Conditional Use Permit to allow for the construction and operation of the 20 MW solar PV facility; (b) a Conditional Use Permit to allow for the construction of a groundwater well; and (c) an Amendment to the Renewable Energy and Transmission Element of the Imperial County General Plan to allow for the Project, which is not located in the RE Overlay Zone,

to be reclassified as being in the RE Overlay Zone; (d) a Zone Change for the implementation of the General Plan Amendment; (e) a Variance allowing the Project's transmission towers of up to 70 feet high to comply with the existing S-2 zone's 40 feet maximum height limit; and (f) certification of the EIR.

F.1, cont.

Based on our review of the DEIR, appendices, and other relevant records, we have determined that the DEIR fails to meet the requirements of the California Environmental Quality Act ("CEQA"). Specifically, the DEIR suffers from the following deficiencies:

- Failure to properly establish the environmental setting for and adequately disclose, analyze, and mitigate the Project's impacts on biological resources;
- Failure to adequately disclose, analyze, and mitigate the Project's impacts on air quality and public health, including a previously undisclosed significant air quality impact;
- Failure to adequately disclose, analyze, and mitigate potentially significant impacts on climate change from greenhouse gas emissions; and
- Failure to adequately disclose, analyze, and mitigate health risk impacts from hazardous materials and Valley Fever.

F.2

For each of these reasons, the County must revise and recirculate the DEIR in order to properly disclose, analyze, and mitigate the Project's significant impacts. The County cannot certify the EIR or approve the project until a revised draft EIR addresses these issues.

These comments were prepared with the assistance of conservation biologist Shawn Smallwood and air quality experts Matt Hagemann and Paul E. Rosenfeld of Soil/Water/Air Protection Enterprise ("SWAPE"). Mr. Smallwood's comments and curricula vitae are attached to this letter as **Exhibit A**.[1] SWAPE's technical comments and curriculum vitae are attached to this letter as **Exhibit B**.[2] Exhibits 1 and 2 are fully incorporated herein and submitted to the County herewith.

F.3

[1] **Exhibit A** – Letter from Shawn Smallwood, Re: Wister Solar Energy Facility EIR, dated August 11, 2020 ("**Smallwood Comments**").
[2] **Exhibit B** – Letter from SWAPE, Re: Comments on Wister Solar Energy Facility Project (SCH No. 2019110140), dated August 6, 2020 ("**SWAPE Comments**").
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Therefore, the County must separately respond to the technical comments of SWAPE and Mr. Smallwood in addition to our comments. F.3, cont.

I. STATEMENT OF INTEREST

Citizens for Responsible Solar ("Citizens") is an unincorporated association of individuals and labor organizations that may be adversely affected by the potential public and worker health and safety hazards and environmental and public service impacts of the Project. The association includes California Unions for Reliable Energy ("CURE") and its member labor organizations, and their members and families, and other individuals that live and/or work in Imperial County.

The individual members of Citizens and the members of the affiliated labor organizations live, work, recreate and raise their families in Imperial County. They would be directly affected by the Project's environmental and health and safety impacts. Individual members may also work constructing the Project itself. They will be first in line to be exposed to any health and safety hazards that may be present on the Project site. They each have a personal interest in protecting the Project area from unnecessary, adverse environmental and public health impacts.

The organizational members of the Citizens also have an interest in enforcing environmental laws that encourage sustainable development and ensure a safe working environment for the members that they represent. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for businesses to locate and people to live there. This, in turn, jeopardizes future development by causing construction moratoriums and otherwise reduces future employment opportunities for construction workers. The labor organization members of the Citizens therefore have a direct interest in enforcing environmental laws to minimize the adverse impacts of projects that would otherwise degrade the environment. F.4

Finally, the organizational members of the Citizens are concerned about projects that risk serious environmental harm without providing countervailing economic benefits. CEQA provides a balancing process whereby economic benefits are weighed against significant impacts to the environment and it is in this spirit that we offer these comments.

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II. LEGAL BACKGROUND

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an EIR, except in limited circumstances.[3] The EIR is the very heart of CEQA.[4] "The foremost principle in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language."[5]

CEQA has two primary purposes. First, CEQA is designed to inform decisionmakers and the public about the potential, significant environmental effects of a project.[6, 7] CEQA's purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. In this respect, an EIR "protects not only the environment but also informed self-government."[8] The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return."

F.5

To fulfill this function, the discussion of impacts in an EIR must be detailed, complete, and "reflect a good faith effort at full disclosure."[9] CEQA requires an EIR to disclose all potential direct and indirect, significant environmental impacts of a project.[10] In addition, an adequate EIR must contain the facts and analysis necessary to support its conclusions.[11]

The second purpose of CEQA is to require public agencies to avoid or reduce environmental damage when possible by requiring appropriate mitigation measures and through the consideration of environmentally superior alternatives.[12] The EIR serves to provide agencies and the public with information about the environmental

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[3] *See, e.g.,* Pub. Res. Code § 21100.
[4] *Dunn-Edwards v. BAAQMD* (1992) 9 Cal.App.4th 644, 652.
[5] *Communities for a Better Env't v. Cal. Res. Agency* (2002) 103 Cal. App.4th 98, 109.
[6] 14 Cal. Code Regs. ("**CEQA Guidelines**"), § 15002, subd. (a)(1).
[7] See, e.g., Pub. Resources Code § 21100.
[8] *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.
[9] CEQA Guidelines § 15151; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 721-722.
[10] Pub. Resources Code § 21100, subd. (b)(1); CEQA Guidelines § 15126.2, subd. (a).
[11] See *Citizens of Goleta Valley* 52 Cal.3d at 568.
[12] CEQA Guidelines § 15002, subds. (a)(2)-(3); see also, *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564; *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 391, 400.
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impacts of a proposed project and to "identify ways that environmental damage can be avoided or significantly reduced." To that end, if an EIR identifies significant impacts, it must then propose and evaluate mitigation measures to minimize these impacts.[13] CEQA imposes an affirmative obligation on agencies to avoid or reduce environmental harm by adopting feasible project alternatives or mitigation measures.[14] Without an adequate analysis and description of feasible mitigation measures, it would be impossible for agencies relying upon the EIR to meet this obligation.

F.5, cont.

While the courts review an EIR using an "abuse of discretion" standard, "the reviewing court is not to 'uncritically rely on every study or analysis presented by a project proponent in support of its position. A clearly inadequate or unsupported study is entitled to no judicial deference."[15] As the courts have explained, "a prejudicial abuse of discretion" occurs "if the failure to include relevant information precludes informed decision-making and informed public participation, thereby thwarting the statutory goals of the EIR process."[16]

III. THE DEIR FAILS TO ADEQUATELY DISCLOSE, ANALYZE, AND MITIGATE SIGNIFICANT IMPACTS

An EIR must fully disclose all potentially significant impacts of a project. The lead agency's significance determination with regard to each impact must be supported by accurate scientific and factual data.[17] An agency cannot conclude that an impact is less than significant unless it produces rigorous analysis and substantial evidence justifying the finding.[18] Finally, the agency cannot approve the project with significant impacts unless it has "eliminated or substantially lessened all significant effects on the environment where feasible."[19] As such, an EIR must identify and describe any feasible measures that can be implemented to reduce or avoid each potentially significant environmental effects of the project.

F.6

[13] Pub. Res. Code §§ 21002.1, subd. (a), 21100, subd. (b)(3).
[14] Pub. Res. Code §§ 21002-21002.1.
[15] *Berkeley Jets*, 91 Cal. App. 4th 1344, 1355 (emphasis added), *quoting, Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 391 409, fn. 12.
[16] *Berkeley Jets*, 91 Cal.App.4th at 1355; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 722; *Galante Vineyards v. Monterey Peninsula Water Management Dist.* (1997) 60 Cal.App.4th 1109, 1117; *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 946.
[17] CEQA Guidelines § 15064(b).
[18] *Kings Cty. Farm Bur. v. Hanford* (1990) 221 Cal.App.3d 692, 732.
[19] CEQA Guidelines § 15092(b)(2)(A).
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The DEIR does not comply with CEQA because it fails to consider all of the Project's significant and foreseeable environmental impacts on biological resources, air quality, public health, and climate change. In some instances, the DEIR's conclusions on the Project's impacts are not supported by substantial evidence. The DEIR also fails to adequately mitigate significant impacts to less than significant. For these reasons, the County must revise the DEIR to remedy these deficiencies and recirculate the revised DEIR for public review and comment.

F.6, cont.

A. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts on Biological Resources

According to the DEIR, the Project area is located within the Sonoran Desert in an area bordered by undeveloped lands, sparse agriculture, and dirt roads.[20] The Project site consists mostly of native, undisturbed habitat.[21] The Sonoran Desert supports a variety of reptile, bird, and mammal species and vegetation in the Project region is influenced by climate, topography, and soils, as well as land uses.[22] Although the DEIR notes this diverse array of vegetation and wildlife, it fails to properly address impacts to these biological resources. As explained below, the DEIR violates CEQA because it: (1) fails to adequately survey the Project site for biological resources and, thus, fails to adequately describe the environmental setting for biological resources; (2) fails to properly disclose and analyze the Project's impacts to numerous biological resources; and (3) fails to adequately mitigate these impacts to a less than significant level.[23] The DEIR must be revised to correct these deficiencies.

F.7

1. The DEIR Fails to Adequately Describe the Environmental Setting for Biological Resources

The existing environmental setting is the starting point from which the lead agency must measure whether a proposed Project may cause a significant environmental impact.[24] Describing the environmental setting accurately and completely for each environmental condition in the vicinity of the Project is critical to an accurate and meaningful evaluation of environmental impacts. The courts are clear that "[b]efore the impacts of a Project can be assessed, and mitigation

F.8

[20] DEIR, p. 3.4-1.
[21] DEIR, p. 2-3.
[22] DEIR, p. 3.4-1.
[23] *See* Smallwood Comments.
[24] *See, e.g., Communities for a Better Env't v. S. Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 316; *Fat v. City of Sacramento* (2002) 97 Cal.App.4th 1270, 1278, *citing* Remy, et al.; Guide to the Calif. Environmental Quality Act (1999) p. 165.
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measures considered, an [EIR] must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined."[25] F.8, cont.

An EIR must describe the existing environmental setting in sufficient detail to enable a proper analysis of project impacts.[26] The CEQA Guidelines provide that "[k]nowledge of the regional setting is critical to the assessment of environmental impacts."[27] This level of detail is necessary to "permit the significant effects of the project to be considered in the full environmental context."[28] The environmental setting is especially critical to forming the baseline conditions that inform the potential for significant impacts on biological resources. F.9

One of the primary sources for the DEIR's biological baseline is a "focused non-protocol" survey conducted "by vehicle and on foot with the primary goal of identifying habitat that could be capable of supporting special-status species and to document the presence/absence of special-status biological resources" ("Stantec Survey").[29] The terms "focused" and "non-protocol" are not defined in the DEIR or its appendices for this survey, and it is therefore unclear how the survey was conducted, including when it began, how long it lasted, or what the focus of the survey was.[30] Additionally, no protocol level surveys were performed for the desert tortoise or burrowing owl, in accordance with U.S. Fish and Wildlife Service ("FWS") and California Department of Fish and Wildlife ("CDFW") guidelines, despite known occurrences of these species near the project site.[31] Moreover, of the surveys completed for the site, only preconstruction surveys were conducted, not the detection surveys outlined in FWS and CDFW guidelines.[32] F.10

In contrast, the DEIR cites to another survey that conducted a protocol-level survey for the flat-tailed horned lizard, a special status species.[33] That survey reported finding an additional special-status species, the loggerhead shrike, which the Stantec Survey and the DEIR fail to report or properly characterize in the F.11

[25] *City of Amador v. El Dorado City Water Agency* (1999) 76 Cal.App.4th 931, 952.
[26] CEQA Guidelines § 15125; *Galante Vineyards v. Monterey Peninsula Water Mgmt. Dist.* (1997) 60 Cal.App.4th 1109, 1121-22.
[27] CEQA Guidelines § 15125(c).
[28] *Id.*
[29] DEIR Appendix E, p. 2.1.
[30] Smallwood Comments, p. 2.
[31] Smallwood Comments, p. 2.
[32] Smallwood Comments, p. 2.
[33] Smallwood Comments, p. 2.
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DEIR's analysis of the species' likelihood to occur on the site.[34] These deficiencies in the DEIR's analysis call into question its environmental baseline as established for biological resources. F.11, cont.

In his letter, Mr. Smallwood further concludes, following a review of focused surveys from nearby projects, databases, and scientific literature, that "an astonishing 91 special-status species [are found] nearby the project site or whose geographic ranges overlap or nearly overlap the project site" and "[o]f these 91 special-status species, 53% are represented as fatalities during construction or operation of California's solar projects."[35] The DEIR, he notes, addresses the occurrence likelihoods of only 28 of these species.[36] F.12

As outlined in Mr. Smallwood's letter, the DEIR incorrectly analyzes the presence of numerous potentially occurring special-status species by omitting analysis completely, determining these species as absent, or as having a low potential for occurrence on the Project site, concluding therefore that impacts would be less than significant. Mr. Smallwood's review of the Project, supported by substantial evidence in Table 1 below, reveals that these species are actually present in the Project vicinity. As such, the DEIR must adequately identify and analyze impacts to these species. At the very least, detection surveys must be properly conducted to determine the presence of the species highlighted by Mr. Smallwood, as discussed in Section III(A)(3). F.13

Table 1. Potentially occurring species of wildlife on the project area according to EIR and eBird (https://eBird.org) or iNaturalist (https://www.inaturalist.org/observations), where 'nearby' means within a few miles of the project site. F.14

Species	Status[1]	Known fatalities at solar energy	Occurrence likelihood	
			EIR	eBird / iNaturalist
Brant, *Branta bernicla*	SSC2	Yes		Nearby
American white pelican, *Pelecanus erythrorhynchos*	SSC1	Yes		Nearby
Brown pelican, *Pelacanus occicentalis californicus*	FE, CE, CFP	Yes	None	Nearby
Double-crested cormorant, *Phalacrocorax auritus*	TWL	Yes		Nearby
Least bittern, *Ixobrychus exilis*	BCC, SSC2	Yes		Nearby

[34] Smallwood Comments, p. 2.
[35] Smallwood Comments, p. 7.
[36] Smallwood Comments, p. 7.
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Species	Status[1]	Known fatalities at solar energy	Occurrence likelihood	
			EIR	eBird / iNaturalist
Yuma Ridgway rail, *Rallus longirostris yumanensis*	FE, CT	Yes	Low	Nearby
Greater sandhill crane, *Grus canadensis tabida*	CT	Not yet		Nearby
Redhead, *Aythya americana*	SSC3	Yes		Nearby
Western snowy plover, *Charadrius alexandrinus nivosus*	FT, BCC	Yes	Low	Nearby
Mountain plover, *Charadrius montanus*	SSC2	Not yet	Moderate	Nearby
Marbled godwit, *Limosa fedua*	BCC	Not yet		Nearby
Short-billed dowitcher, *Limnodromus griseus*	BCC	Not yet		Nearby
Black skimmer, *Rynchops niger*	BCC, SSC3	Not yet	Low	Nearby
California gull, *Larus californicus*	TWL	Yes	Low	Nearby
Caspian tern, *Hydropogne caspia*	TWL	Not yet	Low	Nearby
Gull-billed tern, *Geochelidon nilotica*	SSC3	Not yet	Low	Nearby
California least tern, *Sterna antillarum browni*	FE, CE	Not yet		Nearby
Osprey, *Pandion haliaetus*	TWL, FGC 3503.5	Yes		Nearby
Golden eagle, *Aquila chrysaetos*	BGEPA, CFP, FGC 3503.5	Not yet		Nearby
Bald eagle, *Haliaeetus leucocephalus*	BGEPA, BCC, CE, FGC 3503.5	Not yet		Nearby
Cooper's hawk, *Accipiter cooperii*	TWL, FGC 3503.5	Yes		Nearby
Sharp-shinned hawk, *Accipiter striatus*	TWL, FGC 3503.5	Not yet		Nearby
Ferruginous hawk, *Buteo regalis*	BLM, TWL, FGC 3503.5	Not yet		Nearby
Red-tailed hawk, *Buteo jamaicensis*	FGC 3503.5	Yes		Nearby
Swainson's hawk, *Buteo swainsoni*	CT, FGC 3503.5	Not yet		Nearby
Red-shouldered hawk, *Buteo lineatus*	FGC 3503.5	Not yet		Nearby
Northern harrier, *Circus cyaneus*	SSC3, FGC 3503.5	Yes		Nearby
White-tailed kite, *Elanus leucurus*	CFP, FGC 3503.5	Not yet		Nearby
American kestrel, *Falco sparverius*	FGC 3503.5	Yes	On site	Nearby
Merlin, *Falco columbarius*	TWL, FGC 3503.5	Not yet	Moderate	Nearby
Prairie falcon, *Falco mexicanus*	BCC, TWL, FGC 3503.5	Yes		Nearby
Peregrine falcon, *Falco peregrinus*	CE, CFP, BCC, FGC 3503.5	Yes		Nearby
Long-billed curlew, *Numenius americanus*	TWS	Yes		Nearby
Whimbrel, *Numenius phaeopus*	BCC	Yes		Nearby
Western yellow-billed cuckoo, *Coccyzus americanus occidnetalis*	FT, BCC, CE	Yes		Nearby
Barn owl, *Tyto alba*	FGC 3503.5	Yes		Nearby
Long-eared owl, *Asio otus*	BLM, SSC3	Yes		Nearby

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F.14, cont.

Species	Status[1]	Known fatalities at solar energy	Occurrence likelihood	
			EIR	eBird / iNaturalist
Short-eared owl, *Asio flammeus*	SSC3, FGC 3503.5	Yes		Nearby
Great-horned owl, *Bubo virginianus*	FGC 3503.5	Yes		Nearby
Western screech-owl, *Megascops kennicotti*	FGC 3503.5	Not yet		Nearby
Western burrowing owl, *Athene cunicularia*	BCC, SSC2	Yes	High	Nearby
Gila woodpecker, *Melanerpes uropygialis*	CE, BCC	Not yet	Low	Nearby
Ladder-backed woodpecker, *Dryobates scalaris*	BLM, BCC, CE	Yes		Nearby
Vaux's swift, *Chaetura vauxi*	SSC2	Yes		Nearby
Costa's hummingbird, *Calypte costae*	BCC	Yes		Nearby
Olive-sided flycatcher, *Contopus cooperi*	SSC2	Yes		Nearby
Vermilion flycatcher, *Pyrocephalus rubinus*	SSC2	Yes		Nearby
Southwestern willow flycatcher, *Empidonax traillii*	FE, CE	Not yet	Low	Nearby
Cactus wren, *Campylorhynchus brunneicapillus*	BCC	Yes		Nearby
Purple martin, *Progne subis*	SSC2	Not yet		Nearby
Bank swallow, *Riparia*	CT	Yes		Nearby
Crissal thrasher, *Toxostoma crissale*	BLM, BCC, SSC3	Yes	Moderate	Nearby
LeConte's thrasher, *Toxostoma lecontei*	BLM, BCC, SSC1	Not yet	Moderate	Nearby
Bendire's thrasher, *Toxostoma bendirei*	BCC, SSC3	Not yet		Nearby
Loggerhead shrike, *Lanius ludovicianus*	SSC2	Yes	On site[2]	Nearby
California horned lark, *Eremophila alpestris*	TWL	Yes		Nearby
Black-tailed gnatcatcher, *Polioptera nigriceps*	TWL	Yes	Moderate	Nearby
Arizona Bell's vireo, *Vireo bellii arizonae*	CE, BCC	Not yet		Nearby
Yellow-breasted chat, *Icteria virens*	SSC3	Yes	Low	Nearby
Lucy's warbler, *Oreothlypis luciae*	BCC, SSC3	Yes		Nearby
Yellow warbler, *Dendroica petechia sonorana*	BCC, SSC2	Yes	Moderate	Nearby
Bell's sage sparrow, *Amphispiza belli*	TWL	Yes		Nearby
Vesper sparrow, *Pooecetes gramineus affinis*	SSC2	Yes		Nearby
Grasshopper sparrow, *Ammodramus savannarum*	SSC2	Not yet		Nearby
Large-billed savannah sparrow, *Passerculus s. rostratus*	SSC2	Yes		Nearby
Summer tanager, *Piranga rubra*	SSC1	Yes		Nearby
Tricolored blackbird, *Agelaius tricolor*	CT, BCC	Not yet		Nearby
Yellow-headed blackbird, *X. xanthocephalus*	SSC3	Yes		Nearby
Lawrence's goldfinch, *Spinus lawrencei*	BCC	Not yet		Nearby
Sonoran Desert toad, *Incilius alvarius*	SSC	Not yet	Moderate	In range

F.14, cont.

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Species	Status[1]	Known fatalities at solar energy	Occurrence likelihood	
			EIR	eBird / iNaturalist
Lowland leopard frog, *Lithobates yavapaiensis*	SSC	Not yet	Moderate	Near range
Couch's spadefoot, *Scaphiopus couchii*	BLM, SSC	Not yet	Moderate	Nearby
Desert tortoise, *Gopherus agassizii*	FT, CT	Yes	Moderate	Nearby
Flat-tailed horned lizard, *Phrynosoma mcallii*	SSC	Not yet		Nearby
Hoary bat, *Lasiurus cinereus*	WBWG: M	Not yet		In range
Pallid bat, *Antrozous pallidus*	BLM, SSC, WBWG:H	Yes	Low	Nearby
Western mastiff bat, *Eumops perotis californicus*	BLM, SSC, WBWG:H	Not yet		Nearby
Townsend's big-eared bat, *Corynorhinus t. townsendii*	BLM, SSC, WBWG:H	Yes		In range
Big free-tailed bat, *Tadarida molossa*	SSC, WBWG:MH	Not yet		In range
Pocketed free-tailed bat, *Nyctinomops femorosaccus*	SSC, WBWG:M	Not yet	High	In range
Western yellow bat, *Lasiurus xanthinus*	SSC, WBWG:H	Not yet		In range
Western red bat, *Lasiurus blossivellii*	SSC, WBWG:H	Not yet		In range
Small-footed myotis, *Myotis cililabrum*	BLM, WBWG:M	Yes		In range
Fringed myotis, *Myotis thysanoides*	BLM, WBWG:H	Not yet		In range
Yuma myotis, *Myotis yumanensis*	BLM, WBWG:LM	Yes		In range
California leaf-nosed bat, *Mactotus californicus*	BLM, SSC, WBWG:H	Not yet	Low	Nearby
Round-tailed ground squirrel, *Xerospermophilus tereticaudus chlorus*	SSC	Not yet		Nearby to north
American badger, *Taxidea taxus*	SSC	Not yet	Moderate	Nearby
Desert kit fox, *Vulpes macrotis arsipus*	CFP	Not yet	On site	Nearby
Burro deer, *Odocoileus hemionus eremicus*	SS, PS	Not yet		Nearby
Peninsular bighorn sheep, *Ovis canadensis nelson*	FE, CT	Not yet	None	In range

F.14, cont.

2. The DEIR Fails to Adequately Disclose and Analyze Impacts to Biological Resources from Fatality Rates, Habitat Loss, Wildlife Movement, and Cumulative Impacts

F.15

The DEIR fails to adequately disclose and analyze impacts on several special-status species that leads the County to underestimate significant impacts on biological resources. As such, the DEIR fails to demonstrate with substantial evidence that impacts to these species will be less than significant, as required by CEQA. The DEIR must be revised to correct these deficiencies.

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a. Fatality Rates for the Burrowing Owl

In his letter, Mr. Smallwood provides detailed predictive analysis of mortality rates for Burrowing Owl with respect to the Project:

> After losing their habitat to solar projects, burrowing owls collide with PV solar panels at a rate of 0.182 (95% CI: 0.150-0.258) fatalities/MW/year. Burrowing owls also collide with perimeter fences at a rate of 0.25 (95% CI: 0.197-0.329) fatalities/km/year and with gen-ties at a rate of 0.034 (95% CI: 0.027-0.043) fatalities/km/year. Applied to the project, these rates would predict 3.64 (95% CI: 3-5.2) burrowing owl fatalities per year at PV arrays, 0.37 (95% CI: 0.29-0.48) fatalities per year along the fence, and 0.03 (95% CI: 0.04-0.06) fatalities per year along the gen-tie, totaling 101 (95% CI: 83-144) over the project's projected life, assuming burrowing owls are not earlier extirpated from Imperial County.[37]

F.16

In other words, the Project is expected to kill approximately 101 burrowing owls over the Project's projected life,

Mr. Smallwood's projection comes in stark contrast to the County's claim in the DEIR, which states that because of the "static and highly visible nature of solar panels and transmission towers, burrowing owls are not expected to collide with the structures during daytime foraging activities when they may be hovering or flying in search of prey. No impacts on burrowing owl are anticipated as a result of collision with facility structures, and no mitigation would be required."[38]

Mr. Smallwood has commented on previous solar projects in Imperial County with similar features and his projections on avian mortality have been proven correct by the facts on the ground.[39] He explains, "[t]he scientific evidence is now overwhelming that solar PV arrays deployed at utility scale pose considerable collision risk to birds."[40] The County cannot cursorily dismiss the potential for burrowing owl mortality at the Project site without disclosing and analyzing the substantial evidence of potentially significant impact provided by Mr. Smallwood.

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[37] Smallwood Comments, p. 8.
[38] DEIR, p. 3.4-27.
[39] *See* Smallwood Comments, pp. 8–9.
[40] Smallwood Comments, p. 8.
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b. Habitat Loss

The DEIR's primary claim regarding habitat loss for biological resources at the Project site is that any loss would compose a small percentage of available habitat within the geographic range of any given species.[41] However, Mr. Smallwood identifies three errors with this logic: 1) only a portion of the area within a species' geographic range consists of habitat suitable to the species; 2) species of wildlife are well known to be spatially aggregated within contiguous expanses of suitable habitat, typically occupying only 25% of their available habitat at any given time; and 3) the claim examines project-generated habitat loss at a cumulative scope without examining cumulative impacts.[42] Correcting for the DEIR's inaccurate assumption, Mr. Smallwood finds that the project's destruction of habitat would deny the Sonoran Desert of 1,733 birds, while also killing 8,485 birds for a combined toll of 10,218 birds.[43]

F.17

The DEIR provides essentially no evidence supporting its conclusion that habitat loss will not result in a significant environmental impact. The DEIR must be revised to consider the substantial evidence from Mr. Smallwood to support its conclusions.

c. Wildlife Movement

The County's discussion of wildlife movement in the DEIR concludes that, because "the BSA does not occur within any known wildlife movement corridor or habitat linkage" no significant impact is present.[44] However, a significant impact can be found under CEQA with respect to wildlife movement regardless of whether the movement is channeled by a corridor. Mr. Smallwood elaborates:

F.18

> A site such as the proposed project site is critically important for wildlife movement because it composes a diminishing patch of natural cover within a growing expanse of anthropogenic land uses – especially of solar projects, forcing more volant wildlife to use the site as stopover and staging habitat during migration, dispersal, and home range patrol.[45]

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[41] *See* DEIR, p. 3.4-28.
[42] Smallwood Comments, pp. 9–10.
[43] Smallwood Comments, p. 13.
[44] DEIR, p. 3.4-15
[45] Smallwood Comments, p. 13.
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Additionally, the project would block half of the width of the strip of land between the East Highline Canal and Coachella Canal, which bind a long strip of land from which many small mammals and reptiles likely cannot leave by traveling east or west.[46] These Canals effectively created a forced wildlife movement corridor which would largely be blocked by the Project.[47] This significant evidence, published in publicly available research, was omitted from the DEIR's analysis of the biological impacts from the Project. This omission must be remedied before the EIR can be certified.

F.18, cont.

d. Cumulative Impacts

Mr. Smallwood's research shows that, between collision fatalities and lost breeding capacity due to habitat loss, the cumulative toll of renewable energy projects on birds in the Imperial Valley would remove 472,115 birds over 25 years.[48] The DEIR does not include this type of quantitative analysis in its discussion of cumulative impacts. Instead, it merely acknowledges the mitigation and other regulatory requirements from FWS and CDFW and claims that the Project's compliance, in addition to project compliance at large within Imperial County, with these guidelines and regulations would therefore not contribute substantially to a cumulative biological resources impact.[49] This is an incorrect application of CEQA's guidelines on cumulative impacts.

A project has a significant cumulative impact if the project's potential environmental impacts, although individually limited, are cumulatively considerable.[50] The term "'cumulatively considerable' means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."[51] Thus, by relying on a determinations of less than significant biological impacts for each individual solar project in Imperial County without considering the impacts of all the solar projects *cumulatively*, the DEIR completely fails to conduct a cumulative impacts analysis for the Project.

F.19

No doubt, justification for the Project comes both from the local and state-wide need for energy and the desire to mitigate anthropogenic climate change. But

[46] Smallwood Comments, p. 13.
[47] Smallwood Comments, p. 13.
[48] Smallwood Comments, p. 14.
[49] DEIR, pp. 5-9–5-11.
[50] PRC § 21083(b); 14 CCR §§ 15064(h)(1), 15065(a)(3).
[51] PRC § 21083(b)(2).
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in making this consideration, it cannot be lost that a primary reason for slowing anthropogenic climate change is to reduce its damaging and disruptive effects on wildlife and their habitats, including the many ecosystem services these habitats provide when intact. By continually declaring cumulative impacts to biological resources not significant and not attempting to seek other feasible methods of mitigation, e.g., compensatory mitigation, while allowing the numbers of wildlife fatalities to continue to rise, the DEIR attempts to sidestep one of the pillars of CEQA review and has arrived at a point where the adverse environmental effects are no longer be considered "acceptable."[52] A full quantitative analysis must be completed by the County in order to determine the full extent of cumulative impacts from the Project and similar projects in the County, and additional mitigation should be employed to reduce those impacts before the EIR can be certified.

F.19, cont.

3. The DEIR Fails to Adequately Mitigate Impacts to Biological Resources and does not Include all Feasible Mitigation Measures

Many of the impacts to biological resources discussed above are considered less than significant by the DEIR due to mitigation measures purporting to reduce impacts to biological resources. However, in his letter, Mr. Smallwood identifies multiple mitigation measures that do not adequately mitigate against the extent of impacts to biological resources. Additionally, Mr. Smallwood presents eight feasible mitigation measures not currently adopted by the DEIR that would facilitate further reduction in environmental impacts.

F.20

As previously stated, CEQA imposes an affirmative obligation on agencies to avoid or reduce environmental harm by adopting feasible project alternatives or mitigation measures.[53] Before a project that will cause significant environmental impacts can be approved, a lead agency must find that *all* feasible mitigation measures that would reduce or eliminate a project's impacts have been adopted.[54] The DEIR has failed to do so.

a. Many of the DEIR's Proposed Mitigation Measures are Inadequate

F.21

First, Mr. Smallwood indicates that the preconstruction surveys proposed in BIO-1, BIO-4, BIO-6, BIO-7, and BIO-9 are not sufficient to adequately track the

[52] *See* CEQA Guidelines Section 15093(a).
[53] Pub. Res. Code §§ 21002-21002.1.
[54] *See* CEQA Guidelines §§ 15092(b), 15043.
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biological resources on the Project site. He finds that what "are missing from [the DEIR], and what are in greater need than preconstruction surveys, are detection surveys consistent with guidelines and protocols that wildlife ecologists have uniquely developed for use with each special-status species."[55] Moreover, it is highly unlikely that preconstruction surveys would detect all of the existing nest sites of special-status species of birds on the project site.[56] Thus, the proposed preconstruction survey measures are insufficient to mitigate against their intended impacts.

F.21, cont.

Second, Mr. Smallwood reiterates the issues raised above regarding avian impacts on PV facilities and habitat loss with respect to BIO-2, BIO-3, and BIO-5. Although all of the suggested measures in BIO-2, BIO-3, and BIO-5 are appropriate and necessary, "none of the listed measures would minimize collision fatalities with project infrastructure, and none would minimize or mitigate in any way the impacts of habitat loss."[57] Thus, neither avian fatality rates nor habitat loss are sufficiently analyzed or mitigated in the DEIR. A recirculated DEIR must remedy this error.

F.22

Finally, the Bird and Bat Conservation Strategy proposed in BIO-8 is legally insufficient because it defers the development of the strategy until after the project is approved.[58] Under CEQA, an EIR may not defer a mitigation measure beyond its approval without clear performance standards for what the future mitigation must achieve.[59] Mr. Smallwood describes the type of clear performance standards that would satisfy this requirement under CEQA:

> (1) Describe baseline conditions for bird and bat species present within the Project site, including results of site-specific surveys, (2) Assess potential risk to bird and bats based on the proposed activities, and (3) Specify conservation measures that will be employed to avoid, minimize, and/or mitigate any potential adverse effects to these species.[60]

The performance standards listed in BIO-8 do not rise to this level of specificity or provide adequate protection as required by CEQA. The mitigation measure must be revised to satisfy the legal requirement.

F.23

[55] Smallwood Comments, p. 15.
[56] Smallwood Comments, p. 16.
[57] Smallwood Comments, p. 18.
[58] Smallwood Comments, p. 18.
[59] *See Sacramento Old City Assoc. v. City Council of Sacramento* (1991) 229 Cal. App. 3d 1011.
[60] Smallwood Comments, p. 18.
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b. The DEIR fails to Consider All Feasible Mitigation Measures

In his letter, Mr. Smallwood identifies eight feasible mitigation measures not included in the DEIR that would contribute to the mitigation of biological impacts from the Project. The County must consider and implement these measures in a revised EIR before the EIR can be certified. F.24

- **Detection Surveys**: County of Imperial should recirculate a revised EIR that is founded on adequate detection surveys for special-status species and nesting birds. An example of detection surveys needed at the project site are those of burrowing owls from CDFW guidelines F.24a
- **Post-construction Monitoring of Project Impacts**: Post-monitoring of the Project site for potential impacts should include on-foot and/or scent-detection dog surveys in addition to carcass detection trials. F.24b
- **Behavior Surveys**: The DEIR should require behavior surveys by qualified behavioral ecologists to begin to understand why birds and bats are colliding with solar facilities and what can be done to reduce the impacts. F.24c
- **Transparent Reporting**: Construction and fatality monitoring through several years of operations should be performed by qualified biologists and reported publicly. F.24d
- **Adequate Fatality Monitoring**: Qualified biologists should be retained to perform fatality monitoring. Monitoring should include a single search interval, no longer than weekly searches. F.24e
- **County-Wide Assessment of Solar Impacts**: The County should require scientifically sound fatality monitoring either at all of its solar projects or at a randomized selection of projects and share the results with the public. F.24f
- **Implement Mitigation Measures with Sound Experimental Designs**: Experimental design principles, e.g., mylar ribbons intended to dissuade birds from flying into PV arrays, marked powerlines, and treatments to fences, must be considered prior to implementation of any mitigation measures intended to reduce collision fatalities. F.24g
- **Compensatory Mitigation**: The DEIR needs to be revised to include measures such as habitat protected in exchange for habitat loss and collision fatalities, and donations to wildlife rehabilitation facilities that will care for injured animals delivered from solar projects and other anthropogenic sources. F.24h

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B. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts on Air Quality and Public Health

The DEIR fails to adequately disclose, analyze, and mitigate impacts from the Project's construction and operational emissions. As demonstrated by SWAPE and explained below, the DEIR's analysis is flawed and its finding that impacts from air emissions will be less than significant is not supported by substantial evidence.

First, the DEIR relies on inadequate and unsubstantiated construction and operational emission values. When corrected, an updated analysis shows significant pollutant emissions as a result of the Project's construction. Second, the DEIR improperly concludes that the Project's health risk impacts from construction and operational emissions would be less than significant without conducting a quantified health risk analysis. F.25

The DEIR fails to provide substantial evidence to demonstrate that the Project's construction and operational emissions will result in less than significant impacts. As such, the DEIR does not adequately disclose, analyze, and mitigate impacts on air quality and public health. The DEIR must be revised to address these deficiencies and the revised DEIR must be recirculated for public review and comment.

1. The DEIR does not Adequately Evaluate all Emissions from the Project's Construction and Operation

The Project proposes to install a fiberoptic cable and gen-tie line, along with the solar PV modules and substation facility. However, the DEIR completely omits a quantification of emissions resulting from the construction and operation of the fiberoptic cable and gen-tie line, claiming: F.26

> The installation of the fiberoptic cable would require substantially less construction equipment and shorter duration compared to the construction of the solar energy facility and gen-tie line. Based on this consideration, the installation of the fiberoptic cable would result in GHG emissions below allowable thresholds. This is considered a less than significant impact.[61]

[61] DEIR, p. 3.7-15.

A lead agency's significance determination with regard to each impact must be supported by accurate scientific and factual data.[62] Here, SWAPE notes that "there is a large gap in the DEIR's analysis of the Project's impacts on regional air quality" due to the failure to quantify emissions related to the fiberoptic cable and gen-tie line.[63] As such, the DEIR fails to support both its determination that installation of the fiberoptic cable and gen-tie line will result in a less than significant air quality impact and that the Project's air quality impacts as a whole are less than significant. F.26, cont.

2. The DEIR's Air Quality Modeling Inputs are Unsubstantiated

The DEIR relies upon emission modeling through the California Emissions Estimator Model ("CalEEMod") to support its findings that the Project would have less than significant air quality impacts.[64] However, SWAPE's review of the air modeling inputs determined that certain inputs were not justified while some inputs were not incorporated at all into the calculation. F.27

First, the DEIR's output files show that the Project's anticipated operational vehicle fleet mix percentage values were modified.[65] However, the DEIR's stated justification for these modifications were based on a "*construction-related* vehicle fleet mix," when in fact, "these changes impact the Project's *operational* fleet mix."[66] This incorrect categorization likely causes the DEIR's modeling to underestimate operational emissions.

Second, the DEIR fails to input all operational emission values associated with proposed land uses and activities for the Project. As SWAPE points out, the Project proposes to construct 12 blocks of 2,520 3.5-foot by 4.8-foot PV panels, a 300-foot by 175-foot substation, and a fiberoptic cable and gen-tie line.[67] In total, the Project would include 508,032-SF of PV panels and a 52,500-SF substation, as well as a fiber optic cable and gen-tie line.[68] However, the Project's CalEEMod output files for the Project's operation reveal that PV panels and a substation facility are not included in the land use modeling. Because of this, the model necessarily F.28

[62] CEQA Guidelines § 15064(b).
[63] SWAPE Comments, pp. 11–12.
[64] DEIR, p. 3.3-14.
[65] SWAPE Comments, p. 7.
[66] SWAPE Comments, p. 5.
[67] SWAPE Comments, p. 5.
[68] SWAPE Comments, pp. 5–6.
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underestimates the Project's operational emissions and thus renders the County's analysis incorrect and incomplete.[69] F.28, cont.

Third, the DEIR underestimates and fails to substantiate modeling changes related to operational vehicle trips. SWAPE's review of the CalEEMod output revealed that the modeling underestimated daily operational vehicle trips to the Project site by 10 one-way trips per week and failed to support changes to trip lengths and trip purposes with any justification, against the recommendations of the CalEEMod User's guide.[70] As such, SWAPE could not verify the accuracy of the modeling's vehicle trip emissions, which are likely underestimated. F.29

Fourth, the DEIR's model included changes to the Project's construction and operational paved roads percentages, but these changes were not fully explained and directly contradict the percentages of paved/unpaved roads disclosed in the DEIR.[71] F.30

Finally, the DEIR's modeling shows mitigation measures included for "water exposed area" and "reduce vehicle speed on unpaved roads" were modified, however, these mitigation measures too are not substantiated or explained in the modeling output.[72] Thus, SWAPE was again unable to verify the accuracy of the modeling output. F.31

Unless the DEIR acknowledges and incorporates **all emissions** related to the Project's construction and operational activities and these emissions are adequately supported per the CalEEMod User's Guide, the air model is incomplete, likely results in an underestimation of emissions, and should not be relied upon to determine Project significance. As it is, the DEIR does not have substantial evidence to support its findings of less than significant air quality emissions. The DEIR must be revised to include an accurate and adequate air quality analysis. F.32

3. The DEIR Did Not Evaluate Emissions from Decommissioning Activities

An EIR must describe the project as a whole and the project's "reasonably foreseeable" impacts on the environment.[73] Here, this means analyzing the Project's F.33

[69] SWAPE Comments, p. 6.
[70] SWAPE Comments, p. 7.
[71] SWAPE Comments, pp. 9–10.
[72] SWAPE Comments, pp. 10–11.
[73] Pub. Res. Code § 20165; CEQA Guidelines §§ 15064(d), 15378(a).
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decommissioning impacts as well as its construction and operation impacts. However, the DEIR completely fails to grapple with or provide any quantification of air emissions for the decommissioning of the Project after its 20- to 25-year lifespan, cursorily concluding that "[t]he overall activity would be anticipated to be somewhat less than project construction, and the emissions from off-road and on-road equipment are expected to be much lower than those for the Project construction."[74] This is insufficient, as SWAPE points out, because it is known that the solar panels and associated structures will need to be removed, impacted soils will need to be restored, and debris will need to be hauled off-site.[75] Thus, a quantitative estimation could have been made and emissions from these activities associated with decommissioning should have been evaluated as part of the DEIR's analysis of the Project's impacts to air quality.

F.33, cont.

Until an adequate analysis is conducted that incorporates emissions related to decommissioning activities, the DEIR's analysis results in an underestimation of emissions and should not be relied upon to determine Project significance. As such the DEIR does not have substantial evidence to support its finding of less than significant air quality emissions. The DEIR must be revised to include an accurate and adequate air quality analysis.

F.34

4. When Corrected, the DEIR's Construction Emissions Result in a Significant Impact

After correcting for the errors found in the DEIR's modeling, SWAPE found that the Project's construction-related PM10 emissions increase when compared to the DEIR's model and exceed the 150 pounds per day ("lbs/day") threshold set by the Imperial County Air Pollution Control District (ICAPCD), seen in the table below.[76]

F.35

Model	PM10
DEIR	17.6999
SWAPE	639.7735
% Increase	3515%
ICAPCD Regional Threshold (lbs/day)	**150**

[74] DEIR, p. 3.3-22.
[75] SWAPE Comments, p. 11.
[76] SWAPE Comments, p. 12.
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Threshold Exceeded? ***Yes***

As SWAPE's updated modeling shows, a correct accounting for the Project's construction PM10 emissions shows an increase of 3,515% from the DEIR's estimation, resulting in an exceedance of the ICAPCD's significance threshold. Any significant air quality impacts must be disclosed, analyzed, and mitigated against in an EIR before a project can be approved.[77] The County must do so here before certifying an EIR for the Project.

F.35, cont.

5. The DEIR Did Not Adequately Analyze the Project's Cancer Risk from Construction and Operational Emissions

One of the primary emissions of concern regarding health effects for land development projects is diesel particulate matter ("DPM"), which can be released during Project construction and operation. DPM consists of fine particles with a diameter less than 2.5 micrometer ("µm") including a subgroup of ultrafine particles (which have a diameter less than 0.1 µm). Diesel exhaust also contains a variety of harmful gases and cancer-causing substances. As the DEIR recognizes, exposure to DPM is a recognized health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems.[78]

F.36

The DEIR concludes that the Project would have a less than significant health risk impact without adequately evaluating adverse health impacts resulting from exposure to toxic air contaminants ("TACs").[79] However, the DEIR fails to include a health risk assessment to disclose the increased cancer risk that will be caused by exposure to TACs, such as DPM, from the Project's construction and operational emissions.[80] By omitting a health risk assessment, the DEIR fails to disclose and mitigate the potentially significant cancer risk posed to nearby residents and children from TACs. Moreover, because the DEIR offers no adequate support for its conclusion that the Project's health risk impacts will be less than significant, the DEIR's conclusion is not supported by substantial evidence.

F.37

[77] Pub. Res. Code §§ 21002.1, subd. (a), 21100, subd. (b)(3).
[78] DEIR, p. 3.3-5.
[79] DEIR, p. 3.3-20.
[80] SWAPE Comments, p. 12.
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CEQA expressly requires that an EIR discuss, inter alia, "health and safety problems caused by the physical changes" resulting from the project.[81] When a project results in exposure to toxic contaminants, this analysis requires a "human health risk assessment."[82] F.38

a. The DEIR's Finding that the Project's Health Risk Impacts Will Be Less-Than-Significant Health Risk Impact Is Not Supported by Substantial Evidence

Although the DEIR acknowledges that the greatest potential for TAC emissions would be related to DPM emissions from heavy-duty equipment during construction, the DEIR simply concludes that the Project's cancer risk from exposure to DPM would be less than significant without any quantitative analysis.[83] Relying on non-quantitative analysis and unsupported assumptions to determine that a health risk assessment is not necessary results in a premature and improper finding that TAC impacts would be less than significant. For the reasons discussed below, the DEIR's finding that the Project's health risk impacts will be less than significant is not supported by substantial evidence. F.39

First, as discussed in Section III(B)(1) and (2), the DEIR's analysis relies upon a flawed air modeling analysis with inputs that have not been justified and emission values that were not incorporated (*e.g.*, emissions from all operational and decommissioning activities). As a result, the DEIR's conclusion that DPM emissions would not exceed the significant cancer threshold is unsupported because the emission inputs relied upon are inaccurate and incomplete. F.40

Second, the nearest sensitive receptors to the Project site are considerably closer than that disclosed by the DEIR.[84] F.41

Third, the DEIR cannot conclude a less than significant finding for health risk impacts of DPM based on the assumption that a health risk assessment is not required. More importantly, a less than significant finding for cancer risk is determined by a numeric threshold, ICAPCD's significance threshold is 10 in one F.42

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[81] 14 CCR § 15126.2(a).
[82] *Berkeley Jets*, at 1369; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1219–1220 (CEQA requires that there must be some analysis of the correlation between the project's emissions and human health impacts).
[83] SWAPE Comments, p. 12.
[84] SWAPE Comments, p. 13.
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million, and therefore a quantitative analysis is necessary.[85] Without a quantitative analysis of the Project's TACs emissions, the DEIR's less than significant finding lacks substantial evidence.

F.42, cont.

Finally, SWAPE points that the omission of a quantified health risk assessment is inconsistent with recent widely-adopted guidance published by the Office of Environmental Health Hazard Assessment ("OEHHA"), which recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.[86] OEHHA's guidance document also recommends that exposure from projects lasting more than 6 months should be evaluated for the duration of the project, and a 30-year exposure duration should be used to estimate individual cancer risk for the maximally exposed individual resident ("MEIR").[87] Because the Project's construction will last approximately 221 days, and the Project's operational timeline is approximately 20 years, the County is required to conduct an assessment of public health risks, supported by substantial evidence, as recommended by ICAPCD and OEHHA and as required by CEQA. By failing to prepare a health risk assessment, the DEIR's conclusions of less than significant impacts to public health is unsupported.

F.43

C. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts on Climate Change from Greenhouse Gas ("GHG") Emissions

CEQA requires agencies to "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project."[88] A lead agency can determine the significance of a project's GHG emissions by (1) quantifying GHG emissions resulting from the project; and/or (2) relying on a qualitative analysis or performance based standards.[89] The "agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes."[90] Finally, as with the analysis of all impact areas, the agency must employ all feasible mitigation measures to reduce or eliminate impacts.

F.44

[85] SWAPE Comments, p. 14.
[86] SWAPE Comments, p. 13.
[87] SWAPE Comments, p. 14.
[88] CEQA Guidelines, § 15064.4 (a).
[89] CEQA Guidelines, § 15064.4 (a)(1) and (a)(2)
[90] CEQA Guidelines, § 15064.4 (b).
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Here, the DEIR fails to adequately disclose, analyze, and mitigate GHG impacts on climate change from the Project's construction and operational activities for several reasons. As SWAPE discusses in its technical comments, the DEIR's finding of no significant GHG impacts is incorrect because the DEIR fails to demonstrate with substantial evidence that the Project is consistent with goals, plans, policies or regulations adopted for the purpose of reducing the emissions of GHG. F.45

As such the DEIR improperly concludes that the Project's GHG impacts would be less than significant. The County must make a reasonable effort to conduct a complete and thorough GHG analysis to determine the significant impacts on climate change and propose adequate mitigation measures, based on substantial evidence, that reduces those impacts to less than significant. F.46

1. The DEIR Fails to Provide Substantial Evidence Demonstrating the Project is Consistent with Applicable Plans, Policies or Regulations to Determine that GHG Impacts Are Less-Than-Significant

In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.[91] CEQA Guidelines explicitly mandate, however, that the "analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes."[92] Moreover, California Courts have acknowledged that "over time, consistency with year 2020 goals will become a less definitive guide, especially for long-term projects that will not begin operations for several years [after 2020]."[93] F.47

The DEIR purportedly analyzed impacts from GHG based on "whether the project would be consistent with the State's applicable GHG reduction goals, plans, policies and regulatory requirements."[94] Specifically, the DEIR primarily discusses the Project's consistency with the CARB Scoping Plan ("Scoping Plan"), as neither F.48

[91] CEQA Guidelines, § 15064.4 (b)(3).
[92] 14 CCR §15064.4(b)
[93] *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th at 223.
[94] DEIR, p. 3.7-14.
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the County of Imperial or ICAPCD have any specific plans, policies, nor regulations adopted for reducing the emissions of GHGs.[95] However, the DEIR fails to provide substantial evidence to support this determination as required by CEQA for two reasons. F.48, cont.

First, the Scoping Plan is only intended to provide emission reduction goals through 2020.[96] As previously stated, California Courts have expressed doubt about the continued efficacy of 2020 goals as industrial projects move beyond 2020 in their construction and operation.[97] Indeed, SWAPE notes, "[g]iven that it is already August of 2020, and the Project has not yet been approved, [the Scoping] plan is outdated and does not apply to the proposed Project."[98] F.49

Second, the DEIR merely offers bare conclusions in its determination that the Project is consistent with the Scoping Plan. These conclusory statements do not contain sufficient detail to allow those who did not participate in the EIR's preparation to understand and meaningfully consider the issues raised by the Project.[99] As such, the DEIR lacks substantial evidence to demonstrate that the Project's consistency with these policies results in less-than-significant impacts from GHG emissions. F.50

For the above-stated reasons, the DEIR ultimately fails to adequately disclose, analyze, and mitigate the Project's impacts from GHG emissions. The DEIR must correct these deficiencies in a revised and recirculated EIR. F.51

D. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Public Health Risk Impacts from the Project F.52

CEQA requires lead agencies to consider whether a project would "create a significant hazard to the public or the environment through the routine transport,

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[95] DEIR, p. 3.7-14.
[96] "Climate Change Scoping Plan: A Framework for Change Pursuant to AB 32 The California Global Warming Solutions Act of 2006." California Air Resources Board (CARB), December 2008, available at: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/document/adopted_scoping_plan.pdf, p. 1.
[97] *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th at 223.
[98] SWAPE Comments, p. 15.
[99] E.g. *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 516 ("The ultimate inquiry, as case law and the CEQA guidelines make clear, is whether the EIR includes enough detail 'to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.'").
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use, or disposal of hazardous materials."[100] Likewise, CEQA requires lead agencies to determine whether projects create "a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment."[101]

F.52, cont.

As SWAPE notes in its letter, the DEIR failed to address potential health risk impacts from hazardous materials at the Project site and from Valley Fever. As such the DEIR is inadequate as an informational document and must be revised to address these issues.

1. The DEIR Fails to Disclose, Analyze, and Mitigate Against Potential Hazards and Hazardous Materials at the Project Site

The DEIR states that there are no significant impacts due to the possible release of hazardous materials at the Project site. However, the only information the DEIR relies upon to make this determination is a regulatory database search of the "Cortese List," which SWAPE notes, "does not suffice for disclosure of impacts."[102] SWAPE notes further that, "consistent with professional due diligence procedures commonly used in CEQA matters, a Phase I ESA, completed by a licensed environmental professional is necessary for inclusion in an MND to identify recognized environmental conditions, if any, at the proposed Project site."[103] Thus, without preparing a Phase I ESA, the DEIR did not provide substantial evidence showing that no significant impact will occur from hazards or hazardous materials as a result of the Project.

F.53

2. The DEIR does not Evaluate Potential Health Risk from Valley Fever

CEQA requires that an EIR be prepared with a "sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences."[104] However, the DEIR provides no discussion of the Project's impacts on public health from Valley

F.54

[100] CEQA Guidelines Appendix G Section IX: Hazards and Hazardous Materials.
[101] CEQA Guidelines Appendix G Section IX: Hazards and Hazardous Materials.
[102] SWAPE Comments, p. 1.
[103] SWAPE Comments, p. 2.
[104] CEQA Guidelines, § 15151.
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Fever and provides no substantial evidence to demonstrate the proposed mitigation measures will result in less than significant impacts.[105]

As discussed in greater detail in SWAPE's comments, Valley Fever, also known as coccidioidomycosis, is an infectious disease caused by inhaling the spores of the soil dwelling fungus, *Coccidioides immitis* (CI).[106] The CI spores become airborne when infected soils are disturbed during construction activities, agricultural operations, dust storms, or during earthquakes.[107] The disease is debilitating and prevents those who have contracted Valley Fever from working.[108] A 2012 study revealed that, between 1990 and 2008, half of the 3,000 people who died from Valley Fever in the United States were in California.[109] In recent years, reported Valley Fever cases in southwestern Unites States have increased dramatically.[110] No known cure exists for the disease and there is no vaccine.[111]

F.54, cont.

Notably, another study documented the impact of Valley Fever on workers constructing large, industrial-scale projects during the period of October 2011 through April 2014 and found 44 California solar construction workers diagnosed with symptom onset.[112] Project construction and operation will generate dust which is one of the primary routes of exposure for contracting Valley Fever.[113] Thus, construction workers are one of the most at-risk populations and exposure is much larger for workers on or adjacent to the project site, according to SWAPE's research.[114] Furthermore, the dust generated from Project construction carries very small spores – 0.002-0.005 millimeters in diameter – into other areas, potentially exposing large segments of the public.[115]

F.55

By completely failing to address this issue, the DEIR fails as an informational document and fails to adequately mitigate against significant health risk impacts. In their comments, SWAPE identifies the following mitigation measures that the County must adopt to mitigate against this impact:

[105] SWAPE Comments, p. 2.
[106] SWAPE Comments, p. 3.
[107] SWAPE Comments, p. 3.
[108] SWAPE Comments, p. 3.
[109] SWAPE Comments, p. 3.
[110] SWAPE Comments, p. 3.
[111] SWAPE Comments, p. 3.
[112] SWAPE Comments, p. 3.
[113] SWAPE Comments, p. 3.
[114] SWAPE Comments, p. 3.
[115] SWAPE Comments, p. 4.
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1. Minimize Exposure to Potential Valley Fever–Containing Dust through:
   - Cleaning equipment and vehicles of dust
   - Conducting earth-moving activities downwind of worker when possible
   - Spraying areas to be graded with water
   - Ceasing work if water runs out until a water truck can return
   - Using earth-moving vehicles with closed-cabs and equipped with a HEPA-filtered air systems
   - Training workers about Valley Fever and proving informational handouts.
2. Providing respirators to workers when requested and providing training on the proper use of personal protective equipment.
3. Payment of a monetary fee to Imperial County for implementation of Valley Fever public awareness programs.
4. To require a respiratory protection program that is compliant with California Code of Regulations, Title 8, Section 5144.[116]

F.56

The DEIR must be revised to adequately analyze the Project's impacts of Valley Fever on public health and should fully evaluate and propose a wider range of mitigation measures to reduce those impacts.

E. The DEIR Fails to Implement all Feasible Mitigation Measures for the Project's Air Quality, Health Risk, and GHG Impacts

Finally, SWAPE identifies multiple sets of feasible mitigation measures that the DEIR does not consider as a means of mitigating the air quality, health risk, and GHG impacts outlined above. As stated previously, before a project that will cause significant environmental impacts can be approved, a lead agency must find that *all* feasible mitigation measures that would reduce or eliminate a project's impacts have been adopted.[117] The DEIR has failed to do so here. SWAPE's proposed mitigation measures are reproduced below:

F.57

NEDC's *Diesel Emission Controls in Construction Projects*[118]

[116] SWAPE Comments, p. 4.
[117] *See* CEQA Guidelines §§ 15092(b), 15043.
[118] "Diesel Emission Controls in Construction Projects." Northeast Diesel Collaborative (NEDC), December 2010, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.
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Measures – Diesel Emission Control Technology
a. Diesel Onroad Vehicles All diesel nonroad vehicles on site for more than 10 total days must have either (1) engines that meet EPA onroad emissions standards or (2) emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%.
b. Diesel Generators All diesel generators on site for more than 10 total days must be equipped with emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%.
c. Diesel Nonroad Construction Equipment i. All nonroad diesel engines on site must be Tier 2 or higher. Tier 0 and Tier 1 engines are not allowed on site ii. All diesel nonroad construction equipment on site for more than 10 total days must have either (1) engines meeting EPA Tier 4 nonroad emission standards or (2) emission control technology verified by EPA or CARB for use with nonroad engines to reduce PM emissions by a minimum of 85% for engines 50hp and greater and by a minimum of 20% for engines less than 50hp.
d. Upon confirming that the diesel vehicle, construction equipment, or generator has either an engine meeting Tier 4 non road emission standards or emission control technology, as specified above, installed and functioning, the developer will issue a compliance sticker. All diesel vehicles, construction equipment, and generators on site shall display the compliance sticker in a visible, external location as designated by the developer.
e. Emission control technology shall be operated, maintained, and serviced as recommended by the emission control technology manufacturer.
f. All diesel vehicles, construction equipment, and generators on site shall be fueled with ultra-low sulfur diesel fuel (ULSD) or a biodiesel blend[119] approved by the original engine manufacturer with sulfur content of 15 ppm or less.
Measures – Idling Requirements
During periods of inactivity, idling of diesel onroad vehicles and nonroad equipment shall be minimized and shall not exceed the time allowed under state and local laws.
Measures – Additional Diesel Requirements
a. Construction shall not proceed until the contractor submits a certified list of all diesel vehicles, construction equipment, and generators to be used on site. The list shall include the following: i. Contractor and subcontractor name and address, plus contact person responsible for the vehicles or equipment.

F.57, cont.

[119] Biodiesel blends are only to be used in conjunction with the technologies which have been verified for use with biodiesel blends and are subject to the following requirements: http://www.arb.ca.gov/diesel/verdev/reg/biodieselcompliance.pdf.

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ii. Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel usage and hours of operation. iii. For the emission control technology installed: technology type, serial number, make, model, manufacturer, EPA/CARB verification number/level, and installation date and hour-meter reading on installation date.
b. If the contractor subsequently needs to bring on site equipment not on the list, the contractor shall submit written notification within 24 hours that attests the equipment complies with all contract conditions and provide information.
c. All diesel equipment shall comply with all pertinent local, state, and federal regulations relative to exhaust emission controls and safety.
d. The contractor shall establish generator sites and truck-staging zones for vehicles waiting to load or unload material on site. Such zones shall be located where diesel emissions have the least impact on abutters, the general public, and especially sensitive receptors such as hospitals, schools, daycare facilities, elderly housing, and convalescent facilities.
Reporting
a. For each onroad diesel vehicle, nonroad construction equipment, or generator, the contractor shall submit to the developer's representative a report prior to bringing said equipment on site that includes: i. Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, and engine serial number. ii. The type of emission control technology installed, serial number, make, model, manufacturer, and EPA/CARB verification number/level. iii. The Certification Statement signed and printed on the contractor's letterhead.
b. The contractor shall submit to the developer's representative a monthly report that, for each onroad diesel vehicle, nonroad construction equipment, or generator onsite, includes: i. Hour-meter readings on arrival on-site, the first and last day of every month, and on off-site date. ii. Any problems with the equipment or emission controls. iii. Certified copies of fuel deliveries for the time period that identify: 1. Source of supply 2. Quantity of fuel 3. Quality of fuel, including sulfur content (percent by weight)

F.57, cont.

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SMAQMD's *Basic Construction Emission Control Practices*[120]
The following Basic Construction Emissions Control Practices are considered feasible for controlling fugitive dust from a construction site. The practices also serve as best management practices (BMPs), allowing the use of the non-zero particulate matter significance thresholds. Lead agencies should add these emission control practices as Conditions of Approval (COA) or include in a Mitigation Monitoring and Reporting Program (MMRP).
Control of fugitive dust is required by District Rule 403 and enforced by District staff.
Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
The following practices describe exhaust emission control from diesel powered fleets working at a construction site. California regulations limit idling from both on-road and offroad diesel-powered equipment. The California Air Resources Board (CARB) enforces idling limitations and compliance with diesel fleet regulations.
Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

F.57, cont.

[120] "Basic Construction Emission Control Practices (Best Management Practices)." Sacramento Metropolitan Air Quality Management District (SMAQMD), July 2019, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.
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Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1].
Although not required by local or state regulation, many construction companies have equipment inspection and maintenance programs to ensure work and fuel efficiencies
Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.
SMAQMD's *Enhanced Exhaust Control Practices*[121]
1. The project representative shall submit to the lead agency and District a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. • The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. • The project representative shall provide the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. • This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment. • The District's Equipment List Form can be used to submit this information. • The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.
2. The project representative shall provide a plan for approval by the lead agency and District demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOX reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. • This plan shall be submitted in conjunction with the equipment inventory. • Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

F.57, cont.

[121] "Enhanced Exhaust Control Practices." Sacramento Metropolitan Air Quality Management District (SMAQMD) October 2013, *available at:* http://www.airquality.org/LandUseTransportation/Documents/Ch3EnhancedExhaustControlFINAL10-2013.pdf.

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• The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.
3. The project representative shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. • Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. • Non-compliant equipment will be documented and a summary provided to the lead agency and District monthly. • A visual survey of all in-operation equipment shall be made at least weekly. • A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.
4. The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation shall supersede other District, state or federal rules or regulations.

F.57, cont.

IV. CONCLUSION

The DEIR fails as an informational document and lacks substantial evidence to support its analysis and conclusions in violation of CEQA. The DEIR failed to properly establish the environmental setting for biological resources, adequately disclose and analyze the Project's impacts on biological resources, air quality, public health, and climate change, and adequately mitigate those impacts.

The County must revise the DEIR to cure these deficiencies and must circulate the revised DEIR for public review and comment. We respectfully urge the County to do so prior to any further consideration of the Project.

F.58

Sincerely,

Aaron M. Messing
Attorney

Attachments

AMM:acp

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EXHIBIT A

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Aaron Messing
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11 August 2020

RE: Wister Solar Energy Facility EIR

Dear Mr. Messing,

I write to comment on the Environmental Impact Report (EIR) that was prepared for the proposed Wister Solar Energy Facility, which I understand would consist of 20 MW of photo-voltaic (PV) panels and infrastructure covering 100 acres of the Sonoran Desert (County of Imperial 2020). (Note that page 3.4-1 of the EIR identifies the project size as 122.5 acres, and elsewhere it identifies the size as 115 acres.) The PV array itself would cover 89 acres, and the rest of the project site would include a substation, control room, parking area, and 2,070 m of 20-foot wide, all-weather surfaced access roads (3.1 acres). The PV arrays would be surrounded by "earthen channels" and 1.46 km of 6-foot tall chain-link fence topped by barbed wire, and connected by a 762 m long gen-tie and 3.2 km of fiberoptic cable. A new groundwater well would be constructed to provide the project 0.81 acre-feet per year of water for washing PV panels. I write to comment on the impacts of these facilities on wildlife, which was also addressed by Stantec (2020).

My qualifications for providing an expert review includes the following. I earned a Ph.D. degree in Ecology from the University of California at Davis in 1990, where I also performed four years of post-graduate research. My research is on animal density and distribution, habitat selection, conservation of rare and endangered species, and interactions between wildlife and human infrastructure and activities. I've authored many peer-reviewed papers, reports and book chapters. I served as Chair of the Conservation Affairs Committee for The Wildlife Society – Western Section. I am a member of The Wildlife Society and the Raptor Research Foundation, and I've lectured part-time at California State University, Sacramento. I served as Associate Editor of Journal of Wildlife Management and Biological Conservation, I guest-edited a special issue of Wildlife Society Bulletin, and I served on the Editorial Board of Environmental Management.

As part of research and consulting, I have performed wildlife surveys in California for 35 years, including for many special-status species potentially occurring on the project site -- burrowing owl, golden eagle, Swainson's hawk, American badger, and many others. I have researched bird and bat interactions with renewable energy for 21 years, including diurnal and nocturnal behavior surveys, GPS/GSM telemetry of golden eagles, fatality rate estimation, and efficacy of mitigation measures. I served on the Alameda County Scientific Review Committee that was charged with overseeing the fatality monitoring

F.59

and mitigation measures in the Altamont Pass Wind Resource Area, and I prepared many comment letters on proposed renewable energy projects, including many solar projects. I am in the process of completing a scientific review of California's solar energy impacts on wildlife. I collaborate with colleagues worldwide on the underlying science and policy issues related to renewable energy impacts on wildlife and I also served as a party to multiple California Energy Commission Proceedings on policy related to renewable energy goals and development, including the 33% Renewable Portfolio Standard, the Planning Reserve Margin, and Tehachapi Transmission Line Project. My CV is attached.

F.59, cont.

BIOLOGICAL IMPACTS ASSESSMENT

Stantec (2020) visited the site on a single day on 30 January 2019 to perform "*focused non-protocol surveys for special-status plant and wildlife species*." It is unclear what Stantec meant by focused non-protocol surveys. What did Stantec focus on? Anyhow, Stantec did not report when the surveys began or how long they lasted. So far that I can determine, Stantec's survey effort appears to have been grossly deficient for detecting more than a fraction of the wildlife species that use the project site.

In contrast to whatever it was that Stantec did on the project site, Barrett's Biological Surveys actually followed a survey protocol for a special-status species -- the flat-tailed horned lizards (*Phrynosoma mcallii*; California species of special concern). Following the survey recommendations of Foreman (2003), Barrett's Biological Surveys visited the site on 31 August 2018. They did not detect the species of their focus, but they did report detecting another special-status species – loggerhead shrike (*Lanius ludovicianus*, California species of special concern, priority level 2). And yet this detection was not reported by Stantec (2020) nor County of Imperial (2020), both of whom assigned only a moderate potential for loggerhead shrikes to occur on the site. How many other special-status species were similarly mischaracterized in their potential to occur on the site?

F.60

No protocol-level surveys were performed for desert tortoise or burrowing owl, despite known occurrences of these species near the project site. The EIR needs to be revised so that it is founded on the results of detection surveys that are consistent with US Fish and Wildlife Service (2017) for desert tortoise and with CDFW (2012) for burrowing owl. Until these surveys are completed, the EIR's reports of either these species having not been present during Stantec's survey remain uninformative and even misleading. Burrowing owls are known to be difficult to detect during winter, which is when Stantec visited the site. I must add that preconstruction surveys, which are what County of Imperial (2020) proposes for these species, are not detection surveys. Preconstruction surveys perform a different function than does detection surveys. Detection surveys are needed to inform readers of the EIR -- decision-makers and the public – as well as those who later perform preconstruction surveys.

After reviewing eBird and iNaturalist, I must conclude that Stantec (2020) and County of Imperial (2020) neglect the occurrence likelihoods of many special-status species of wildlife (Table 1). It also appears that County of Imperial (2020) considers occurrence

Table 1. Potentially occurring species of wildlife on the project area according to EIR and eBird (https://eBird.org) or iNaturalist (https://www.inaturalist.org/observations)., where 'nearby' means within a few miles of the project site.

Species	Status[1]	Known fatalities at solar energy	Occurrence likelihood	
			EIR	eBird / iNaturalist
Brant, *Branta bernicla*	SSC2	Yes		Nearby
American white pelican, *Pelecanus erythrorhynchos*	SSC1	Yes		Nearby
Brown pelican, *Pelacanus occicentalis californicus*	FE, CE, CFP	Yes	None	Nearby
Double-crested cormorant, *Phalacrocorax auritus*	TWL	Yes		Nearby
Least bittern, *Ixobrychus exilis*	BCC, SSC2	Yes		Nearby
Yuma Ridgway rail, *Rallus longirostris yumanensis*	FE, CT	Yes	Low	Nearby
Greater sandhill crane, *Grus canadensis tabida*	CT	Not yet		Nearby
Redhead, *Aythya americana*	SSC3	Yes		Nearby
Western snowy plover, *Charadrius alexandrinus nivosus*	FT, BCC	Yes	Low	Nearby
Mountain plover, *Charadrius montanus*	SSC2	Not yet	Moderate	Nearby
Marbled godwit, *Limosa fedua*	BCC	Not yet		Nearby
Short-billed dowitcher, *Limnodromus griseus*	BCC	Not yet		Nearby
Black skimmer, *Rynchops niger*	BCC, SSC3	Not yet	Low	Nearby
California gull, *Larus californicus*	TWL	Yes	Low	Nearby
Caspian tern, *Hydropogne caspia*	TWL	Not yet	Low	Nearby
Gull-billed tern, *Geochelidon nilotica*	SSC3	Not yet	Low	Nearby
California least tern, *Sterna antillarum browni*	FE, CE	Not yet		Nearby
Osprey, *Pandion haliaetus*	TWL, FGC 3503.5	Yes		Nearby
Golden eagle, *Aquila chrysaetos*	BGEPA, CFP, FGC 3503.5	Not yet		Nearby
Bald eagle, *Haliaeetus leucocephalus*	BGEPA, BCC, CE, FGC 3503.5	Not yet		Nearby
Cooper's hawk, *Accipiter cooperii*	TWL, FGC 3503.5	Yes		Nearby
Sharp-shinned hawk, *Accipiter striatus*	TWL, FGC 3503.5	Not yet		Nearby
Ferruginous hawk, *Buteo regalis*	BLM, TWL, FGC 3503.5	Not yet		Nearby
Red-tailed hawk, *Buteo jamaicensis*	FGC 3503.5	Yes		Nearby
Swainson's hawk, *Buteo swainsoni*	CT, FGC 3503.5	Not yet		Nearby
Red-shouldered hawk, *Buteo lineatus*	FGC 3503.5	Not yet		Nearby

F.61

3

Species	Status[1]	Known fatalities at solar energy	Occurrence likelihood	
			EIR	eBird / iNaturalist
Northern harrier, *Circus cyaneus*	SSC3, FGC 3503.5	Yes		Nearby
White-tailed kite, *Elanus leucurus*	CFP, FGC 3503.5	Not yet		Nearby
American kestrel, *Falco sparverius*	FGC 3503.5	Yes	On site	Nearby
Merlin, *Falco columbarius*	TWL, FGC 3503.5	Not yet	Moderate	Nearby
Prairie falcon, *Falco mexicanus*	BCC, TWL, FGC 3503.5	Yes		Nearby
Peregrine falcon, *Falco peregrinus*	CE, CFP, BCC, FGC 3503.5	Yes		Nearby
Long-billed curlew, *Numenius americanus*	TWS	Yes		Nearby
Whimbrel, *Numenius phaeopus*	BCC	Yes		Nearby
Western yellow-billed cuckoo, *Coccyzus americanus occidnetalis*	FT, BCC, CE	Yes		Nearby
Barn owl, *Tyto alba*	FGC 3503.5	Yes		Nearby
Long-eared owl, *Asio otus*	BLM, SSC3	Yes		Nearby
Short-eared owl, *Asio flammeus*	SSC3, FGC 3503.5	Yes		Nearby
Great-horned owl, *Bubo virginianus*	FGC 3503.5	Yes		Nearby
Western screech-owl, *Megascops kennicotti*	FGC 3503.5	Not yet		Nearby
Western burrowing owl, *Athene cunicularia*	BCC, SSC2	Yes	High	Nearby
Gila woodpecker, *Melanerpes uropygialis*	CE, BCC	Not yet	Low	Nearby
Ladder-backed woodpecker, *Dryobates scalaris*	BLM, BCC, CE	Yes		Nearby
Vaux's swift, *Chaetura vauxi*	SSC2	Yes		Nearby
Costa's hummingbird, *Calypte costae*	BCC	Yes		Nearby
Olive-sided flycatcher, *Contopus cooperi*	SSC2	Yes		Nearby
Vermilion flycatcher, *Pyrocephalus rubinus*	SSC2	Yes		Nearby
Southwestern willow flycatcher, *Empidonax traillii*	FE, CE	Not yet	Low	Nearby
Cactus wren, *Campylorhynchus brunneicapillus*	BCC	Yes		Nearby
Purple martin, *Progne subis*	SSC2	Not yet		Nearby
Bank swallow, *Riparia riparia*	CT	Yes		Nearby
Crissal thrasher, *Toxostoma crissale*	BLM, BCC, SSC3	Yes	Moderate	Nearby
LeConte's thrasher, *Toxostoma lecontei*	BLM, BCC, SSC1	Not yet	Moderate	Nearby
Bendire's thrasher, *Toxostoma bendirei*	BCC, SSC3	Not yet		Nearby

F.61, cont.

Species	Status[1]	Known fatalities at solar energy	Occurrence likelihood	
			EIR	eBird / iNaturalist
Loggerhead shrike, *Lanius ludovicianus*	SSC2	Yes	On site[2]	Nearby
California horned lark, *Eremophila alpestris*	TWL	Yes		Nearby
Black-tailed gnatcatcher, *Polioptera nigriceps*	TWL	Yes	Moderate	Nearby
Arizona Bell's vireo, *Vireo bellii arizonae*	CE, BCC	Not yet		Nearby
Yellow-breasted chat, *Icteria virens*	SSC3	Yes	Low	Nearby
Lucy's warbler, *Oreothlypis luciae*	BCC, SSC3	Yes		Nearby
Yellow warbler, *Dendroica petechia sonorana*	BCC, SSC2	Yes	Moderate	Nearby
Bell's sage sparrow, *Amphispiza belli*	TWL	Yes		Nearby
Vesper sparrow, *Pooecetes gramineus affinis*	SSC2	Yes		Nearby
Grasshopper sparrow, *Ammodramus savannarum*	SSC2	Not yet		Nearby
Large-billed savannah sparrow, *Passerculus s. rostratus*	SSC2	Yes		Nearby
Summer tanager, *Piranga rubra*	SSC1	Yes		Nearby
Tricolored blackbird, *Agelaius tricolor*	CT, BCC	Not yet		Nearby
Yellow-headed blackbird, *X. xanthocephalus*	SSC3	Yes		Nearby
Lawrence's goldfinch, *Spinus lawrencei*	BCC	Not yet		Nearby
Sonoran Desert toad, *Incilius alvarius*	SSC	Not yet	Moderate	In range
Lowland leopard frog, *Lithobates yavapaiensis*	SSC	Not yet	Moderate	Near range
Couch's spadefoot, *Scaphiopus couchii*	BLM, SSC	Not yet	Moderate	Nearby
Desert tortoise, *Gopherus agassizii*	FT, CT	Yes	Moderate	Nearby
Flat-tailed horned lizard, *Phrynosoma mcallii*	SSC	Not yet		Nearby
Hoary bat, *Lasiurus cinereus*	WBWG: M	Not yet		In range
Pallid bat, *Antrozous pallidus*	BLM, SSC, WBWG:H	Yes	Low	Nearby
Western mastiff bat, *Eumops perotis californicus*	BLM, SSC, WBWG:H	Not yet		Nearby
Townsend's big-eared bat, *Corynorhinus t. townsendii*	BLM, SSC, WBWG:H	Yes		In range
Big free-tailed bat, *Tadarida molossa*	SSC, WBWG:MH	Not yet		In range
Pocketed free-tailed bat, *Nyctinomops femorosaccus*	SSC, WBWG:M	Not yet	High	In range
Western yellow bat, *Lasiurus xanthinus*	SSC, WBWG:H	Not yet		In range
Western red bat, *Lasiurus blossivellii*	SSC, WBWG:H	Not yet		In range
Small-footed myotis, *Myotis cililabrum*	BLM, WBWG:M	Yes		In range

F.61, cont.

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Species	Status[1]	Known fatalities at solar energy	Occurrence likelihood	
			EIR	eBird / iNaturalist
Fringed myotis, *Myotis thysanoides*	BLM, WBWG:H	Not yet		In range
Yuma myotis, *Myotis yumanensis*	BLM, WBWG:LM	Yes		In range
California leaf-nosed bat, *Mactotus californicus*	BLM, SSC, WBWG:H	Not yet	Low	Nearby
Round-tailed ground squirrel, Xero*spermophilus tereticaudus chlorus*	SSC	Not yet		Nearby to north
American badger, *Taxidea taxus*	SSC	Not yet	Moderate	Nearby
Desert kit fox, *Vulpes macrotis arsipus*	CFP	Not yet	On site	Nearby
Burro deer, *Odocoileus hemionus eremicus*	SS, PS	Not yet		Nearby
Peninsular bighorn sheep, *Ovis canadensis nelson*	FE, CT	Not yet	None	In range

[1] Listed as FE and FT = federal endangered and threatened, BCC = U.S. Fish and Wildlife Service Bird Species of Conservation Concern, CE and CT = California endangered and threatened, CFP = California Fully Protected (FGC Code 3511), FGC 3503.5 = California Fish and Game Code 3503.5 (Birds of prey), SSC = California species of special concern (not threatened with extinction, but rare, very restricted in range, declining throughout range, peripheral portion of species' range, associated with habitat that is declining in extent), and SSC1, SSC2 and SSC3 = priorities 1, 2 and 3, respectively (Shuford and Gardali 2008), TWL = Taxa to Watch List (Shuford and Gardali 2008), WBWG = Western Bat Working Group listing as moderate or high priority.

[2] The EIR assigned the site moderate potential for supporting loggerhead shrike, but Barrett's Biological Surveys (2018) reported detecting the species on site.

F.61, cont.

potential only in the contexts of natural habitat affiliations, but not in the context of birds fooled into perceiving PV arrays as bodies of water. The Lake Effect associated with PV solar projects has been discussed for a decade, so it is nothing new. Birds not normally seen on desert scrub, such as California brown pelicans, brant, and double-crested cormorants, have been found dead where they attempted to land on solar panels in the false belief they were landing on water. There may be additional effects of the PV arrays that attract birds or bats to locations they normally would not visit. The evidence of these effects is in the fatality monitoring reports of about 25% of California's installed capacity of solar energy projects where monitoring has been implemented and their results came into my possession.

My review of records of species occurrences reveals an astonishing 91 special-status species nearby the project site or whose geographic ranges overlap or nearly overlap the project site. The site of the proposed project is rich in special-status species, and therefore is vulnerable to significant impacts multiple times over. Of these 91 special-status species, 53% are represented as fatalities during construction or operation of California's solar projects. County of Imperial (2020) addressed the occurrence likelihoods of only 28 (30%) of these species. The EIR needs to be revised to make much greater use of species occurrence data that are available to the County, including from eBird and iNaturalist, and from fatality monitoring reports from 1,488.5 MW of solar projects within Imperial County as of 2019 (according to the California Energy Commission).

F.62

Based on my review of the available fatality monitoring reports (Althouse and Meade 2012, 2014; Chambers Group 2016; Doering and Santistevan 2013; Dudek 2018; Heritage Environmental Consultants 2014, 2015a,b, 2016, 2017a,b,c; H.T. Harvey & Associates 2013, 2015a,b;Martinson et al. 2018a,b; Shoener and Barrett's Biological Surveys 2018; UltraSystems. 2014a – e; Western EcoSystems Technology 2016, 2017a,b,c, 2018a,b, 2019), 190 species of birds and 8 species of bats have been documented as collision fatalities at California solar projects. Many of these species are special-status species, and some are listed as threatened or endangered (Table 1). Of 81 volant, special-status species in Table 1, 47 (58%) have already been recorded as solar project fatalities. The rest are likely to be also eventually identified as solar project fatalities.

Because the fatality monitoring efforts varied widely in methods that affect estimation of fatality rates, and because some reports reported on the fatalities found but did not report fatality estimates, I applied a uniform suite of adjustment factors to the data collected at each study to improve comparability (Smallwood unpublished data). I relied on on-site carcass detection trials to the degree that was reasonable (e.g., I did not use searcher detection rates of Christmas tree ornaments placed in one study to represent birds in Imperial County), but I also scaled some of the results to variation in detection rates linked to body mass of the species found as fatalities. Both bird and bat fatalities found at solar projects tend to be smaller-bodied species than those found at wind projects, and the tended to be smaller than the species used in carcass detection trials.

Predicted Fatality Rates

After losing their habitat to solar projects, burrowing owls collide with PV solar panels at a rate of 0.182 (95% CI: 0.150-0.258) fatalities/MW/year. Burrowing owls also collide with perimeter fences at a rate of 0.25 (95% CI: 0.197-0.329) fatalities/km/year and with gen-ties at a rate of 0.034 (95% CI: 0.027-0.043) fatalities/km/year. Applied to the project, these rates would predict 3.64 (95% CI: 3-5.2) burrowing owl fatalities per year at PV arrays, 0.37 (95% CI: 0.29-0.48) fatalities per year along the fence, and 0.03 (95% CI: 0.04-0.06) fatalities per year along the gen-tie, totaling 101 (95% CI: 83-144) over the project's projected life, assuming burrowing owls are not earlier extirpated from Imperial County.

To estimate County-wide burrowing owl collision fatalities at existing solar projects plus the proposed project, I relied on mean burrowing owl fatalities among whole projects (PV arrays, fences, gen-ties all together as causal factors). With the project, the available data support a cumulative County-wide toll of 275 (95% CI: 226-389) burrowing owl collision deaths/MW/year. Assuming burrowing owls persist long enough, the 25-year toll would be 6,875 (95% CI: 1,875-3,250) collision fatalities in the County based on the 2019 installed capacity plus the proposed project.

All birds together collide with PV solar panels or associated infrastructure at a rate of 11.605 deaths/MW/year (95% CI: 8.570-16.626 deaths/MW/year). Birds also collide with perimeter fences at a rate of 14.435 (95% CI: 10.88-20.339) fatalities/km/year and with gen-ties at a rate of 113.162 (95% CI: 71.78-198.424) fatalities/km/year. Applied to the project, these rates would predict 232.1 (95% CI: 171.4-332.5) bird fatalities per year at PV arrays, 21.1 (95% CI: 15.88-29.69) fatalities per year along the fence, and 86.2 (95% CI: 54.70-151.20) fatalities per year along the gen-tie, totaling, or 8,485 (95% CI: 6,050-12,835) over the project's projected life.

F.63

Relying on the mean fatality rates of whole projects including this project, the available data support a cumulative County-wide toll of 17,506 (95% CI: 12,929-25,080) bird collision deaths/year. The 25-year toll would be 437,650 (95% CI: 32,323-627,000) bird collision fatalities in the County based on the 2019 installed capacity plus the proposed project.

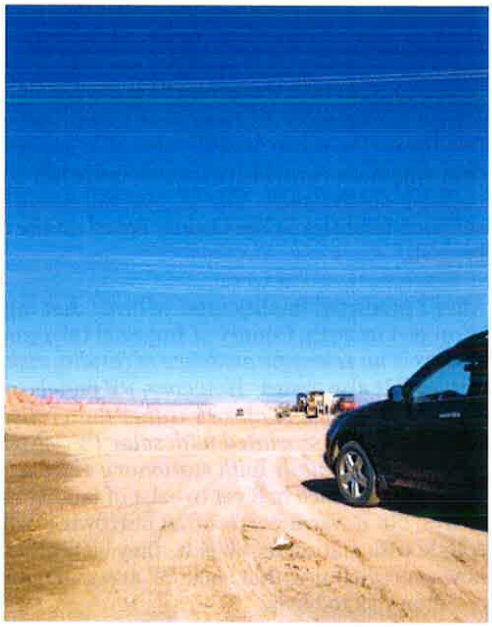
After I predicted fatality rates of birds that might be caused by the Imperial Valley Solar II project in 2013, County of Imperial (2013:682-683) responded to my comments, "*There is no scientific evidence of fatality risks to birds associated with solar PV arrays.*" It also states "*However, PV panels are dark black rather than reflective, as they are designed to absorb rather than reflect sunlight, and there is no firm evidence of bird strikes associated with solar PV.*" And, "*Burrowing owls, like all raptors, are not known to collide with stationary objects.*" The County was correct at the time that scientific evidence had yet to exist of fatality risks to birds associated with solar PV arrays, but it was incorrect that burrowing owls and other raptors were not known to collide with stationary objects; they were (Figures 1 and 2). The scientific evidence is now overwhelming that solar PV arrays deployed at utility scale pose considerable collision risk to birds.

Figure 1. *Photo of burrowing owl fatality at the Imperial Solar Energy Facility West (photo source: 18 June 2015 memo from Michael Robinson to Carrie Simmons (BLM), Magdalena Rodriguez (CDFW), Jody Fraser (USFWS) and David Black (Imperial County)).*

Photo 1: BUOW carcass, ventral view (as found) 6-18-15

F.63, cont.

Figure 2. *Photo of burrowing owl carcass under generation tie-in lines at the Imperial Solar Energy Facility West (photo source: 18 June 2015 memo from Michael Robinson to Carrie Simmons (BLM), Magdalena Rodriguez (CDFW), Jody Fraser (USFWS) and David Black (Imperial County)).*



9

In my comments on the Imperial Valley Solar II project in 2013, I relied on what information I had available at the time -- as well as a couple of assumptions -- to predict 324 (80% CI: 107 to 540) bird fatalities/year, or 10.8 (3.57 to 18) bird fatalities/MW/year. My predicted fatality rate turned out to be very close to the measured mean fatality rate at PV arrays among California solar PV projects -- 11.605 (95% CI: 8.570-16.626) bird fatalities/MW/year. The mean fatality rate ended up only 7% higher than my prediction, and the confidence range was narrower (also note that I used an 80% CI in 2013, but a 95% CI in 2020). Even in 2013, prediction science was sufficiently advanced to accurately predict bird collision impacts of solar PV. Today's impact predictions should be taken even more seriously.

Unfortunately, County of Imperial (2020:3.4-27) expresses the same false risk assessment for burrowing owls that it did in 2013: *"Given the static and highly visible nature of solar panels and transmission towers, burrowing owls are not expected to collide with the structures during daytime foraging activities when they may be hovering or flying in search of prey. No impacts on burrowing owl are anticipated as a result of collision with facility structures, and no mitigation would be required."* Just as it did in 2013, County of Imperial presents a false description of burrowing owl foraging behavior. Having spent 995 hours on a thermal-imaging camera to watch burrowing owl foraging behavior at night, and having spent 25 years studying burrowing owls during daylight hours, I can state with confidence that the majority of burrowing owl foraging flights are made at night. I have also seen a burrowing owl collide with a static structure. Furthermore, I have quantified a large number of burrowing owls killed after colliding with static structures (Smallwood and Bell 2020). Finally, the fatality monitoring reports from solar PV projects, including those in Imperial County, prove the County wrong in its risk assessment. The burrowing owl is one of the species of birds that most often collides with PV panels and associated infrastructure. After removing habitat of burrowing owls, PV solar projects become ecological sinks for burrowing owls residing in surrounding areas.

F.64

County of Imperial (2020) concludes that collision fatalities of birds with the project's solar panels and associated infrastructure would qualify as significant impacts. It then says these impacts would be mitigated to less than significant levels with the implementation of BIO-5 and BIO-8. I comment on these measures under MITIGATION.

HABITAT LOSS

County of Imperial (2020) argues that the habitat loss would compose small percentages of available habitat within each species' geographic range. LeConte's thrasher is used as an example, in which the County points out that the habitat area of the project composes only 0.0003% of the area of the species' range. This argument, however, is fallacious for multiple reasons. First, only a portion of the area within a species' geographic range consists of habitat suitable to the species. For example, burrowing owls disproportionately reside on valley bottoms and the lower portions of southwest-facing slopes.

F.65

Second, species of wildlife are well known to be spatially aggregated within contiguous expanses of suitable habitat, typically occupying only 25% of their available habitat at any given time (Taylor and Taylor 1979, den Boer 1981, Hanski 1994, Smallwood 1995, 1997, 2001; Smallwood et al. 2013, Smallwood and Morrison 2018). In the burrowing owl example, only 25% of the valley floors and 25% of the southwest-facing slopes are typically occupied at any given time (Smallwood et al. 2013).

The third fallacy of the argument made by County of Imperial is that it examines project-generated habitat loss at a cumulative scope without examining cumulative impacts. The County's premise is that, cumulatively, there remains ample habitat available to LeConte's thrasher and other species, but it neglects to point out the rapid habitat loss caused by solar projects and other projects permitted by the County and by other jurisdictions. Within only a few years, County of Imperial has permitted the conversion of enough open space to have installed 1,488.5 MW of solar PV (as of 2019). Based on my review of the fatality monitoring reports, PV projects typically require 6.604 acres per MW. Therefore, the County has permitted the conversion of about 9,830 acres to solar PV, and likely is in the process of allowing much more habitat destruction for utility-scale solar projects.

F.65, cont.

County of Imperial's argument, made repeatedly by themselves and by too many others, is the main reason that overall bird abundance has declined 29% across North America over the past 48 years (Rosenberg et al. 2019). Using radar data, and using BBS data in the manner these data were intended to be used, Rosenberg et al. (2019) revealed a loss of 3 billion birds from North America – a loss with profound ecological and economic impacts yet to be quantified or understood. The long-term economic loss might vastly exceed the short-term economic gain from utility-scale PV. For example, my review of California's fatality monitoring reports reveals an average fatality rate of 1.482 mourning doves per MW per year, or 20,996 mourning doves/year. Thus, solar projects are taking 2% to 3% of the annual hunter harvest of a California population that already decline 67% between 2003 and 2017 (Seamans 2018). If the population's decline is accelerated by utility-scale solar, then California will suffer an economic loss in terms of its mourning dove harvest.

Even greater economic harm looms in the case of the burrowing owl as an example of costs associated with attempting to conserve special-status species that are rapidly declining. Thirteen years ago, 71% of California's entire burrowing owl population resided within the Imperial Valley, after the species had declined throughout the rest of its range in California (DeSante et al. 2007, Shuford and Gardali 2008). It is difficult to say what percentage of the population now resides in Imperial Valley, because much of the Valley has been converted to utility-scale solar projects. In the meantime, I measured a substantial decline at Naval Air Station Lemoore, in the Altamont Pass, and in Yolo County (Smallwood, unpublished data). Burrowing owls have also delinked in the San Francisco Bay Region and throughout the Great Central Valley. Attempts to reverse the trend are expensive drains on the economy, including for inventory and monitoring surveys, vegetation management, installations of nest boxes, capture and relocations, and artificial breeding.

When commenting on the Desert Renewable Energy Conservation Plan (DRECP), I reviewed reports of burrowing surveys in the Imperial Valley (Table 2). The average density was 8.47 pairs per km². This average density applied to the area of the project site would predict about 4 breeding pairs of burrowing owls. The DRECP targeted 71,000 acres (287.3 km²) of solar projects in Imperial Valley. Based on mean density of burrowing owls in the Valley, the targeted acreage would result in the loss of 2,433 pairs of burrowing owls, or 43% of the 2007 Imperial Valley population. The proposed project appears to be independent of the DRECP, given that County of Imperial (2020) never explains whether or how this project would participate with the DRECP. If this and other projects are added to the acreage targeted by the DRECP, then the cumulative impacts to burrowing owls will be even greater.

Table 2. *Nesting densities of burrowing owls at proposed project sites within Imperial County.*

Source	Site	Ha	Pairs	Nest density, pairs/km²
Cornett 2012	Imperial Valley Solar Company 2	64	4	6.25
Ecology and Environment 2012	Hudson Ranch Power II Geothermal Project	99	13	13.13
Ecology and Environment 2012	McDonald Road portion of Hudson Ranch	78	13	16.67
HDR 2011	Mt. Signal	1,711	72	4.21
BLM 2012	Ocotillo Sol	46	5	8.58
Imperial County 2012	Solar Gen II	813	56	5.61
Heritage Environmental Consultants, LLC. 2012a	Campo Verde	1,338	65	4.86
Average				8.47

F.66

Franzeb (1978) provided a basis for applying the average density approach to estimating breeding bird capacity. Franzeb's (1978) study was nearby the project site, at the Algodones Dunes, and included 2 types of vegetation cover that resembled that of the project site; it was likely inhabited by a similar suite of bird species. Franzeb (1978) estimated 0.366 breeding birds/ha on the 2 similar cover types. Projected to the areas of the project site, this density would predict 42 breeding birds, or 21 nests that would be wiped out upon construction grading. Assuming 25 years of operational impacts, and assuming an average fledging of 2.9 birds/nest/year (Young 1948) and a generation time of 5 years, the lost capacity of both breeders and annual chick production would total 1,733 birds ((nests/year × chicks/nest × number of years) + (2 adults/nest × nests/year × (number of years ÷ years/generation))). The project would deny the Sonoran Desert another 1,733 birds during the 25-year lifespan of the project. The project would have a very large impact on the breeding capacity of birds.

As I noted earlier, the impacts of habitat loss would be compounded by solar projects acting as ecological sinks. Over the project's life, the project's destruction of habitat would deny the Sonoran Desert of 1,733 birds, while also killing 8,485 birds for a combined toll of 10,218 birds. A cost of 511 bird fatalities per MW would be a high cost. F.66, cont.

WILDLIFE MOVEMENT

The premise of County of Imperial's (2020) analysis of potential impacts on wildlife movement in the region is that a wildlife movement corridor must be known to exist, and that it is the corridor to which the project must interfere for an impact to be significant. This premise is false, however. County of Imperial's consultant characterized wildlife movement more accurately. Stantec's (2020) characterization was consistent with my own experience with monitoring the movement patterns of wildlife, and that is that most animals do not follow linear elements of the landscape most of the time. If animals did follow streams or ridgelines, as examples, their movement patterns would become too predictable to avoid predation, and alternatively prey species would too easily predict where predators would be waiting. This double-sided logical problem is why animals move across all feasible route alternatives.

The primary phrase of the CEQA standard goes to wildlife movement regardless of whether the movement is channeled by a corridor. A site such as the proposed project site is critically important for wildlife movement because it composes a diminishing patch of natural cover within a growing expanse of anthropogenic land uses – especially of solar projects, forcing more volant wildlife to use the site as stopover and staging habitat during migration, dispersal, and home range patrol (Warnock 2010, Taylor et al. 2011, Runge et al. 2014). The EIR needs to be revised to seriously address the project's potential impacts on wildlife movement in the region. F.67

Non-volant species of wildlife might be particularly vulnerable to the project's interference with their ability to move through the region. The project would block half of the width of the strip of land between the East Highline Canal and Coachella Canal. These Canals bound a long strip of land from which many small mammals and reptiles likely cannot leave by traveling east or west. These Canals effectively created a forced wildlife movement corridor (Smallwood 2015). The project would largely block movement along that corridor.

Figure 5-1 of the EIR depicts a much more dire interference with wildlife movement in the region as a consequence of cumulative effects of existing and possible future projects. The eventual buildout of renewable energy would completely block wildlife movement along the strip of land between the East Highline and Coachella Canals. Even worse, it would entirely block wildlife movement between the Coachella Canal and Salton Sea. The EIR needs to be revised to seriously address this issue.

Would the project Interfere with an adopted HCP?

The project does not appear to be participating with the DRECP; County of Imperial (2020) only lists the DRECP in its definitions of terms, but never explains the project's

relationship to the DRECP. I raised serious concerns with the DRECP when its EIR was circulated for public review. That said, a great deal of work went into the DRECP, so I find it troubling that the proposed project appears to have ignored it. The project, if approved, would take the place of another project that I assume would have participated with the DRECP. The impacts analyses and mitigation plan of the DRECP would not apply to this project, which would generate impacts above and beyond those anticipated in the DRECP. F.67, cont.

CUMULATIVE IMPACTS

Figure 5-1 of the EIR identifies 1,336.6 MW of renewable energy capacity on >5,203 acres. County of Imperial (2020) claims that impacts at other projects would be reduced to less than significant levels through mitigation formulated by CDFW and USFWS, which is an indirect way of claiming the DRECP was formulated to mitigate impacts at those projects. However, the fatality monitoring reports reveal what has been happening despite any implementation of mitigation measures. The fatality rates are occurring at the levels I summarized earlier – they are substantial and highly significant in their impacts.

County of Imperial (2020) claims that because each project mitigates its impacts, and because Wister Solar would also mitigate its impacts, there will be no significant cumulative impacts. In other words, County of Imperial claims that cumulative impacts are residual impacts of unsuccessful mitigation. If this were true, CEQA would define cumulative effects simply as the effects of unmitigated impacts. If CEQA did define cumulative effects this way, then cumulative effects analysis would be the analysis of mitigation efficacy. But this is not how CEQA defines cumulative effects. F.68

County of Imperial relies on the list method of cumulative effects analysis, even though, assuming the County receives reports from the solar projects in the County, it has the means to more directly estimate ongoing cumulative impacts and to predict future cumulative impacts. As I commented earlier, the fatality monitoring reports available to me support an estimated mean 11.605 bird fatalities/MW/year (95% CI: 8.570-16.626). This rate applied to the County's cumulative total 1,336.6 MW in the Imperial Valley, combined with the 20 MW of the proposed project, would predict a cumulative annual toll of 15,743 (95% CI: 11,626-22,555) bird collision fatalities//year. The 25-year toll would be 393,575 (95% CI: 290,650-563,875) bird collision fatalities within the geographic scope defined by the County for its cumulative impacts analysis. And of course, a more comprehensive cumulative effects analysis would also estimate the number of failed nests resulting from solar project collision victims never returning to the nest, and it would estimate additional incremental and interactive effects. It would be indefensible to refer to thousands of bird fatalities as less-than-significant cumulative impacts, for they are indeed residual impacts after mitigation was implemented (or not, as the case may be). Having worked for 20 years in the Altamont Pass Wind Resource Area (APWRA), where the annual toll on birds was estimated to have been half of the toll predicted for the Imperial Valley (Smallwood and Karas 2009), I can assure County of Imperial that the cumulative impacts of renewable energy on wildlife will be significant. Millions of dollars have been spent, thousands of hours used, and legal

actions brought to address the APWRA's impacts to wildlife, and the ecological and economic costs continue to pile up 40 years after the first wind turbines were installed.

County of Imperial can also do more than the list method to estimate the cumulative impacts from habitat loss. As I commented earlier, Franzeb (1978) estimated 0.366 breeding birds/ha on the least productive vegetation cover types at Algodones Dunes. Projecting that density to the acres of project development in the County's list, and assuming bird density on agricultural land would equal the densities of the least productive vegetation covers at Algodones Dunes, Franzeb's bird density would predict >1,904 breeding birds, or 952 nests that have been or would be wiped out upon construction grading. Assuming 25 years of operational impacts, and assuming an average fledging of 2.9 birds/nest/year (Young 1948) and a generation time of 5 years, the lost capacity of both breeders and annual chick production would total 78,540 birds ((nests/year × chicks/nest × number of years) + (2 adults/nest × nests/year × (number of years ÷ years/generation))). The list of projects in County of Imperial's cumulative effects analysis would deny Imperial Valley another 78,540 birds over the next 25 years. Cumulative impacts from habitat loss would be highly significant on the breeding capacity of birds. F.68, cont.

Between collision fatalities and lost breeding capacity due to habitat loss, the cumulative toll of renewable energy projects on birds in the Imperial Valley would remove 472,115 birds over 25 years. As mentioned earlier, cumulative impacts do not stop with these numbers, but also include abandoned nests, disrupted social bonds, demographic imbalances and other ecological consequences that are difficult to quantify. Cumulative impacts will also extend to the actions and funds that will be expended to deal with declines in special-status species and game species. The EIR should be revised to more seriously analyze cumulative impacts.

MITIGATION

BIO-1, BIO-4, BIO-6, BIO-7 and BIO-9 – Preconstruction Surveys

Preconstruction surveys should be performed for special-status species of plants, nesting birds, desert tortoise, burrowing owl, and American badger. However, preconstruction surveys are more effective when preceded and informed by detection surveys. Detection surveys are needed to inform preconstruction surveys by mapping out where biologists performing preconstruction surveys are most likely to find animals before the tractor blade finds them. Detection surveys are also needed to assess impacts, because preconstruction surveys are not designed for assessing impacts. Furthermore, detection surveys are needed to inform the formulation of appropriate mitigation measures, because preconstruction surveys are not intended for this role either. What are missing from County of Imperial (2020), and what are in greater need than preconstruction surveys, are detection surveys consistent with guidelines and protocols that wildlife ecologists have uniquely developed for use with each special-status species. For example, County of Imperial needs to implement the CDFW (2012) detection survey guidelines for burrowing owls. F.69

Based on my experience and review of the scientific literature, bird nests are easily missed in preconstruction surveys, because birds are skilled at concealing nests within dense clusters of branches or dense foliage, or even on open ground, e.g., killdeer nests include eggs colored to blend with the local pebbles and are laid in a cupped depression with no vegetation. Very difficult to find are nests of Allen's hummingbirds and cavity-nesters. Loggerhead shrikes nest in various plant structures, but typically in the densest portions of shrubs or trees which are further concealed by the adults' skill at misleading human observers into concluding the nest site might be somewhere else. In short, it is highly unlikely that preconstruction surveys would detect all of the existing nest sites of special-status species of birds on the project site.

Preconstruction surveys, which are also referred to as take-avoidance surveys, are really salvage operations for the individual plants or animals that are readily detectable right before construction grading begins, will not prevent substantial harm such as construction- and operations-caused fatalities and habitat loss. Preconstruction surveys do not avoid reduce, rectify or compensate for impacts. At best, preconstruction surveys only minimize impacts by granting salvaged individuals a second chance. But even for the rare "salvaged" individuals, their displacement often results in their deaths or the deaths of others in the areas receiving translocated plants or animals (Griffith et al. 1989, Dodd and Seigel 1991, Schulz 1997). Conspecifics outside the project area can be injured or killed or starved as a result of competition with desperate animals that are translocated from the project. In one study of relocated burrowing owls, for example, many of the translocated owls collided with windows and automobiles soon after release (Schulz 1997). The process of translocation appears to be traumatic for the translocated individuals, as it probably also is for the conspecifics having to deal with the translocated animals released into their territories. Below I summarize mitigation guidelines with which I concur. I recommend that the EIR be revised to accommodate these guidelines.

F.69, cont.

The California Native Plant Society (CNPS) prepared mitigation guidelines for projects posing threats to special-status species of plants (CNPS 1998). Here I summarize the CNPS guidelines as well as CDFW's (1997) expectations for mitigation.

CNPS (1998) advocates only for mitigation involving avoidance of impacts. To avoid impacts, CNPS recommends pre-project planning and design, reconfiguring an existing project, or adopting the no-project alternative, in addition to site protection such as fencing and transfer of development rights in easements or fee title.

When lead agencies decide to minimize, rectify, reduce or compensate impacts, CNPS (1998) recommends certain standards. For example, mitigation measures should be developed on a site-specific basis, and should involve consultation with the appropriate regulatory agencies. Additional research should be conducted to determine which mitigation measures are appropriate for the specific life history and ecological relationships of rare plant species occurring at a particular site. CNPS (1998) regards habitat restoration and off-site introduction or translocation as unproven and usually

unsuccessful. Genetic contamination of an otherwise unaffected population is intolerable.

When lead agencies allow reduction of impacts, CNPS's (1998) guidelines maintain that the project size should be reduced, the project sited in the least environmentally sensitive area and surrounded by buffer zones permanently protected in conservation easements. CNPS also insists that efforts be made to salvage portions of the population that will be lost.

When restoration is pursued, CNPS (1998) recommends that it be directed to mitigate impacts of projects approved prior to environmental regulations. It must be tailored to the project site based on the assembly of local species and habitats. The goals of the restoration project and the courses of action intended to achieve those goals need to precede implementation. Pre-impact site conditions should be determined, and the restoration plan should consider land contours, soil types, erosion patterns, and pre-impact hydrologic conditions. Study of the targeted species should be thorough so as to identify their total distribution, habitat descriptions of occupied site and symbiotic relationships with other species. The plan should consider propagation techniques, re-introduction strategy, invasive species controls, site protection, public access and other factors. Finally, a monitoring program should be sufficiently rigorous to assess restoration success, and to augment the knowledge base relevant to related restoration efforts.

F.69, cont.

When lead agencies authorize reductions of impacts over time, the CNPS (1998) recommends limiting public access to protected habitat areas through fencing or other means, and that the species and habitat conditions are monitored to detect intrusion and subsequent impacts caused by construction and operation activities. Public education should be implemented regarding the values of these areas.

When off-site compensation is pursued, off-site populations should be protected permanently through conservation easement or mitigation banking. The area of a conservation easement must be sufficiently large to support a biologically secure, reproducing population within a buffer zone in perpetuity. The surrounding land uses must be considered, as well as expected future land uses. The design of the site boundary and management plan must be scientifically based, utilizing information from baseline studies and natural history data for each species. The contract should specify the rights of the grantee, the grantors rights and uses, and restrictions of undesirable activities, and it should include language that binds the terms and conditions of the contract in perpetuity, regardless of fee title transfers. The contract should protect the site from land use change, introduction of exotic species and public access, and it should protect the right of the grantee to enforce compliance with the terms of the easement.

Also, the mitigation exchange ratio should exceed 1:1 for most species, thereby accounting for an inevitable net loss of individuals and habitat area. Where needed, off-site compensation areas should be enhanced by reducing impacts caused by on-going activities such as over-grazing by livestock or dumping of hazardous materials or trash. Translocations should be preceded by detailed inventories of species occurring at the

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receiving site, accompanied by a feasibility assessment regarding persistence and avoidance of genetic contamination. These should also occur at the appropriate time of year, following proper handling and propagation methods in consultation with the regulatory agencies. Furthermore, all translocations should be completed and shown to be successful prior to the initiation of project activities.

CNPS (1998) and CDFW (1997) insist that the mitigation design, implementation measures, and reporting methods be clearly documented, along with whom or which agencies are responsible for achieving clearly defined success criteria. Assurances must be provided in writing that certain performance criteria of the mitigation plan will be realized, and guaranteed by a negotiable performance security large enough to complete the mitigation and to pursue alternative mitigation measures should the implementation be incomplete or the objectives fail to be achieved. Five years of monitoring the success of the mitigation should be the minimum time period before returning the performance security.

F.69, cont.

BIO-2 –Impact Avoidance and Minimization Measures

I concur with the implementation of all the measures listed per this measure. These measures can help minimize electrocutions of birds, bird-automobile collisions, non-target poisonings from use of anti-coagulant poisons, and so on. They should be implemented. However, none of the listed measures would minimize collision fatalities with project infrastructure, and none would minimize or mitigate in any way the impacts of habitat loss.

F.70

BIO-3 and BIO-5 – Worker Environmental Awareness Plan and Worker Education Plan

I concur that the measures listed for environmental awareness and education should be implemented. They have merit. However, none of them would minimize collision fatalities with project infrastructure, and none would minimize or mitigate in any way the impacts of habitat loss.

F.71

BIO-8 – Bird and Bat Conservation Strategy

For a utility-scale solar project, this measure is of high importance. Unfortunately, the formulation of this measure is deferred to an unspecified later date, but neither I nor the public will see the Bird and Bat Conservation Strategy (BBCS) prior to certification of the EIR. Elements of the BBCS should have contributed directly to the Environmental Setting, Impacts Analysis and Mitigation portions of the EIR. Those elements include (1) Describe baseline conditions for bird and bat species present within the Project site, including results of site-specific surveys, (2) Assess potential risk to bird and bats based on the proposed activities, and (3) Specify conservation measures that will be employed to avoid, minimize, and/or mitigate any potential adverse effects to these species. Decision-makers and the public need to see these portions of the BBCS detailed in the EIR.

F.72

This measure includes the later formulation of an adaptive management plan. However, adaptive management, by definition, requires participation of all stakeholders from the outset, who also identify and agree upon the objectives along with hypotheses to be tested, the monitoring plan to generate data needed for hypothesis-testing, and threshold fatality rates that would trigger management actions or alternative management prescriptions (see Holling 1978 or Walters 1986 for descriptions of the adaptive management process). Measures decided exclusively by two agencies would not be products of adaptive management.

I was a member of Alameda County Scientific Review Committee (SRC) which oversaw the implementation of an adaptive management plan in the Altamont Pass Wind Resource Area (APWRA) – the only such plan I am aware of having been implemented at a renewable energy resource area. Our plan began with a year of meetings of the Altamont Working Group, which included all stakeholders, including wind companies and their consultants, members of County, State, and Federal agencies, staff of politicians, scientists and environmentalists. The Altamont Working Group identified and agreed upon a suite of mitigation measures, but acknowledged those measures that would require greater technical scrutiny. The Alameda County Board of Supervisors passed a Resolution that emplaced the Alameda County SRC to further develop and oversee the adaptive management plan, along with open meetings to facilitate meaningful public participation, a use and fatality monitoring program to inform the SRC of the efficacy of mitigation measures and progress towards a raptor fatality reduction target. Alternative prescriptions were included. The plan set forward in the APWRA was true adaptive management, at least as written and initially implemented. Not all parties remained faithful to the plan, however, so progress was delayed and ultimately the plan proved ineffective (see Smallwood 2008 for an early assessment).

F.72, cont.

It is not enough for the EIR to say adaptive management will be implemented. It is not enough for the reasons given in the preceding paragraph, but also for not identifying candidate measures that would be implemented as part of adaptive management. Of all the candidate measures the SRC deliberated or implemented in the APWRA over 10 years, only two of the measures generated measurable results. Mitigation measures implemented at solar projects have been unable to generate any measurable results, largely due to poor experimental design. Unless viable candidate measures can be identified to reduce fatalities, and unless scientifically sound experimental designs can be proposed, The EIR's promise of adaptive management will be empty.

RECOMMENDED MEASURES

Detection Surveys

County of Imperial should recirculate a revised EIR that is founded on adequate detection surveys for special-status species and nesting birds. Detection surveys need to be implemented according to available protocols and guidelines. An example of detection surveys needed at the project site are those of burrowing owls (CDFW 2012).

F.73

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Post-construction Monitoring of Project Impacts

Of the fatality monitoring efforts at California's utility-scale solar projects, those in Imperial County were among those in need of greatest improvement. Monitors in Imperial County opted to search for fatalities by car, which would not have detected nearly as many fatalities as searching by foot or using scent-detection dogs. Some monitors in Imperial County opted to not implement carcass detection trials, which left the monitoring efforts incomplete. Some reports of fatality monitoring in Imperial County failed to identify exactly where the project was located, and some provided only meager descriptions of the project or the environment in which the project occurs. Reporting of fatality monitoring could also improve in Imperial County.

Behavior Surveys

Given the large magnitude of ongoing bird and bat fatalities at solar energy projects, Imperial County needs to require behavior surveys by qualified behavioral ecologists to begin to understand why birds and bats are colliding with solar facilities and what can be done to reduce the impacts. As an example, scientists argued for years over what factors contributed to bird and bat fatalities at wind turbines. Their arguments amounted to frustrating defenses of speculated relationships between volant animals and wind turbines. It was not until behavior surveys were implemented when causal factors were better clarified and more effective solutions implemented. My review of fatality monitoring at solar projects revealed no efforts to survey for avian or bat behaviors around solar PV arrays, fences and gen-ties. Behavior ecologists need to spend some time observing birds and bats at solar PV, and that means both day and night surveys using appropriate equipment.

F.73, cont.

Transparent Reporting

The public needs to know, and scientists working to develop solutions need to know, of project impacts from construction through operations. Construction monitoring should be meticulously reported and shared with the public. Fatality monitoring through several years of operations should be performed by qualified biologists and reported publicly. Impacts to public trust resources such as to wildlife need to be reported publicly.

Adequate Fatality Monitoring

Qualified biologists should be retained to perform fatality monitoring. Monitoring should include a single search interval, no longer than weekly searches (Smallwood 2013, 2020). Searches should be made by biologists walking, not riding in cars, or better yet, by qualified dog handlers using scent-detection dogs (Smallwood et al. 2020). Searchers need to be tested for their detection rates of avian and bat carcasses, and trial carcasses need to be appropriate to the species killed at the projects and integrated into routine fatality monitoring rather than placed in separate trials for searcher detection and carcass persistence (Smallwood et al. 2018). Detection trials should not make use

of colorful Christmas ornaments to represent birds, or use birds to represent bats. County of Imperial needs to take scientific standards in fatality monitoring seriously.

County-Wide Assessment of Solar Impacts

County of Imperial needs to initiate scientifically sound fatality monitoring either at all of its solar projects or at a randomized selection of projects, and it needs to share the results with the public. The public needs to understand the impacts associated with utility-scale solar energy generation so that it can weight the merits of new projects against distributed generation. Distributed generation requires no additional habitat loss, no perimeter fences, and no additional transmission lines, and to date it has not been associated with a single bird or bat death.

Implement Mitigation Measures with Sound Experimental Designs

As I commented earlier, measures have been implemented to reduce fatalities at multiple solar projects, including mylar ribbons intended to dissuade birds from flying into PV arrays, marked powerlines, and treatments to fences, among other measures. However, none of these measures were implemented according to experimental designs that would facilitate measurement of treatment effects. Experimental design principles must be considered prior to implementation of any mitigation measures intended to reduce collision fatalities (Sinclair and DeGeorge 2016).

F.73, cont.

Compensatory Mitigation

Wildlife fatality rates estimated at solar projects represent the number of animals per MW per year that are not mitigated in any way. This must stop. Compensatory measures are needed to offset the large numbers of birds and bats killed at solar projects, as well as for habitat loss. The EIR needs to be revised to include measures such as habitat protected in exchange for habitat loss and collision fatalities, and donations to wildlife rehabilitation facilities that will care for injured animals delivered from solar projects and other anthropogenic sources. The project needs to compensate for its impacts.

Thank you for your attention,

Shawn Smallwood

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Young, H. 1948. A comparative study of nesting birds in a five-acre park. The Wilson Bulletin 61:36-47.

Kenneth Shawn Smallwood
Curriculum Vitae

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Born May 3, 1963 in
Sacramento, California.
Married, father of two.

Ecologist

Expertise

- Finding solutions to controversial problems related to wildlife interactions with human industry, infrastructure, and activities;
- Wildlife monitoring and field study using GPS, thermal imaging, behavior surveys;
- Using systems analysis and experimental design principles to identify meaningful ecological patterns that inform management decisions.

Education

Ph.D. Ecology, University of California, Davis. September 1990.
M.S. Ecology, University of California, Davis. June 1987.
B.S. Anthropology, University of California, Davis. June 1985.
Corcoran High School, Corcoran, California. June 1981.

Experience

- 480 professional publications, including:
- 83 peer reviewed publications
- 24 in non-reviewed proceedings
- 371 reports, declarations, posters and book reviews
- 8 in mass media outlets
- 87 public presentations of research results

Editing for scientific journals: Guest Editor, *Wildlife Society Bulletin*, 2012-2013, of invited papers representing international views on the impacts of wind energy on wildlife and how to mitigate the impacts. Associate Editor, *Journal of Wildlife Management*, March 2004 to 30 June 2007. Editorial Board Member, *Environmental Management*, 10/1999 to 8/2004. Associate Editor, *Biological Conservation*, 9/1994 to 9/1995.

Member, Alameda County Scientific Review Committee (SRC), August 2006 to April 2011. The five-member committee investigated causes of bird and bat collisions in the Altamont Pass Wind Resource Area, and recommended mitigation and monitoring measures. The SRC

reviewed the science underlying the Alameda County Avian Protection Program, and advised the County on how to reduce wildlife fatalities.

Consulting Ecologist, 2004-2007, California Energy Commission (CEC). Provided consulting services as needed to the CEC on renewable energy impacts, monitoring and research, and produced several reports. Also collaborated with Lawrence-Livermore National Lab on research to understand and reduce wind turbine impacts on wildlife.

Consulting Ecologist, 1999-2013, U.S. Navy. Performed endangered species surveys, hazardous waste site monitoring, and habitat restoration for the endangered San Joaquin kangaroo rat, California tiger salamander, California red-legged frog, California clapper rail, western burrowing owl, salt marsh harvest mouse, and other species at Naval Air Station Lemoore; Naval Weapons Station, Seal Beach, Detachment Concord; Naval Security Group Activity, Skaggs Island; National Radio Transmitter Facility, Dixon; and, Naval Outlying Landing Field Imperial Beach.

Part-time Lecturer, 1998-2005, California State University, Sacramento. Instructed Mammalogy, Behavioral Ecology, and Ornithology Lab, Contemporary Environmental Issues, Natural Resources Conservation.

Senior Ecologist, 1999-2005, BioResource Consultants. Designed and implemented research and monitoring studies related to avian fatalities at wind turbines, avian electrocutions on electric distribution poles across California, and avian fatalities at transmission lines.

Chairman, Conservation Affairs Committee, The Wildlife Society--Western Section, 1999-2001. Prepared position statements and led efforts directed toward conservation issues, including travel to Washington, D.C. to lobby Congress for more wildlife conservation funding.

Systems Ecologist, 1995-2000, Institute for Sustainable Development. Headed ISD's program on integrated resources management. Developed indicators of ecological integrity for large areas, using remotely sensed data, local community involvement and GIS.

Associate, 1997-1998, Department of Agronomy and Range Science, University of California, Davis. Worked with Shu Geng and Mingua Zhang on several studies related to wildlife interactions with agriculture and patterns of fertilizer and pesticide residues in groundwater across a large landscape.

Lead Scientist, 1996-1999, National Endangered Species Network. Informed academic scientists and environmental activists about emerging issues regarding the Endangered Species Act and other environmental laws. Testified at public hearings on endangered species issues.

Ecologist, 1997-1998, Western Foundation of Vertebrate Zoology. Conducted field research to determine the impact of past mercury mining on the status of California red-legged frogs in Santa Clara County, California.

Senior Systems Ecologist, 1994-1995, EIP Associates, Sacramento, California. Provided consulting services in environmental planning, and quantitative assessment of land units for their

conservation and restoration opportunities basedon ecological resource requirements of 29 special-status species. Developed ecological indicators for prioritizing areas within Yolo County to receive mitigation funds for habitat easements and restoration.

Post-Graduate Researcher, 1990-1994, Department of Agronomy and Range Science, *U.C. Davis*. Under Dr. Shu Geng's mentorship, studied landscape and management effects on temporal and spatial patterns of abundance among pocket gophers and species of Falconiformes and Carnivora in the Sacramento Valley. Managed and analyzed a data base of energy use in California agriculture. Assisted with landscape (GIS) study of groundwater contamination across Tulare County, California.

Work experience in graduate school: Co-taught Conservation Biology with Dr. Christine Schonewald, 1991 & 1993, UC Davis Graduate Group in Ecology; Reader for Dr. Richard Coss's course on Psychobiology in 1990, UC Davis Department of Psychology; Research Assistant to Dr. Walter E. Howard, 1988-1990, UC Davis Department of Wildlife and Fisheries Biology, testing durable baits for pocket gopher management in forest clearcuts; Research Assistant to Dr. Terrell P. Salmon, 1987-1988, UC Wildlife Extension, Department of Wildlife and Fisheries Biology, developing empirical models of mammal and bird invasions in North America, and a rating system for priority research and control of exotic species based on economic, environmental and human health hazards in California. Student Assistant to Dr. E. Lee Fitzhugh, 1985-1987, UC Cooperative Extension, Department of Wildlife and Fisheries Biology, developing and implementing statewide mountain lion track count for long-term monitoring.

Fulbright Research Fellow, Indonesia, 1988. Tested use of new sampling methods for numerical monitoring of Sumatran tiger and six other species of endemic felids, and evaluated methods used by other researchers.

Projects

Repowering wind energy projects through careful siting of new wind turbines using map-based collision hazard models to minimize impacts to volant wildlife. Funded by wind companies (principally NextEra Renewable Energy, Inc.), California Energy Commission and East Bay Regional Park District, I have collaborated with a GIS analyst and managed a crew of five field biologists performing golden eagle behavior surveys and nocturnal surveys on bats and owls. The goal is to quantify flight patterns for development of predictive models to more carefully site new wind turbines in repowering projects. Focused behavior surveys began May 2012 and continue. Collision hazard models have been prepared for seven wind projects, three of which were built. Planning for additional repowering projects is underway.

Test avian safety of new mixer-ejector wind turbine (MEWT). Designed and implemented a before-after, control-impact experimental design to test the avian safety of a new, shrouded wind turbine developed by Ogin Inc. (formerly known as FloDesign Wind Turbine Corporation). Supported by a $718,000 grant from the California Energy Commission's Public Interest Energy Research program and a 20% match share contribution from Ogin, I managed a crew of seven field biologists who performed periodic fatality searches and behavior surveys, carcass detection trials, nocturnal behavior surveys using a thermal camera, and spatial analyses with the collaboration of a GIS

analyst. Field work began 1 April 2012 and ended 30 March 2015 without Ogin installing its MEWTs, but we still achieved multiple important scientific advances.

Reduce avian mortality due to wind turbines at Altamont Pass. Studied wildlife impacts caused by 5,400 wind turbines at the world's most notorious wind resource area. Studied how impacts are perceived by monitoring and how they are affected by terrain, wind patterns, food resources, range management practices, wind turbine operations, seasonal patterns, population cycles, infrastructure management such as electric distribution, animal behavior and social interactions.

Reduce avian mortality on electric distribution poles. Directed research toward reducing bird electrocutions on electric distribution poles, 2000-2007. Oversaw 5 founds of fatality searches at 10,000 poles from Orange County to Glenn County, California, and produced two large reports.

Cook *et al.* v. Rockwell International *et al.*, No. 90-K-181 (D. Colorado). Provided expert testimony on the role of burrowing animals in affecting the fate of buried and surface-deposited radioactive and hazardous chemical wastes at the Rocky Flats Plant, Colorado. Provided expert reports based on four site visits and an extensive document review of burrowing animals. Conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. Discovered substantial intrusion of waste structures by burrowing animals. I testified in federal court in November 2005, and my clients were subsequently awarded a $553,000,000 judgment by a jury. After appeals the award was increased to two billion dollars.

Hanford Nuclear Reservation Litigation. Provided expert testimony on the role of burrowing animals in affecting the fate of buried radioactive wastes at the Hanford Nuclear Reservation, Washington. Provided three expert reports based on three site visits and extensive document review. Predicted and verified a certain population density of pocket gophers on buried waste structures, as well as incidence of radionuclide contamination in body tissue. Conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. Discovered substantial intrusion of waste structures by burrowing animals.

Expert testimony and declarations on proposed residential and commercial developments, gas-fired power plants, wind, solar and geothermal projects, water transfers and water transfer delivery systems, endangered species recovery plans, Habitat Conservation Plans and Natural Communities Conservation Programs. Testified before multiple government agencies, Tribunals, Boards of Supervisors and City Councils, and participated with press conferences and depositions. Prepared expert witness reports and court declarations, which are summarized under Reports (below).

Protocol-level surveys for special-status species. Used California Department of Fish and Wildlife and US Fish and Wildlife Service protocols to search for California red-legged frog, California tiger salamander, arroyo southwestern toad, blunt-nosed leopard lizard, western pond turtle, giant kangaroo rat, San Joaquin kangaroo rat, San Joaquin kit fox, western burrowing owl, Swainson's hawk, Valley elderberry longhorn beetle and other special-status species.

Conservation of San Joaquin kangaroo rat. Performed research to identify factors responsible for the decline of this endangered species at Lemoore Naval Air Station, 2000-2013, and implemented habitat enhancements designed to reverse the trend and expand the population.

Impact of West Nile Virus on yellow-billed magpies. Funded by Sacramento-Yolo Mosquito and Vector Control District, 2005-2008, compared survey results pre- and post-West Nile Virus epidemic for multiple bird species in the Sacramento Valley, particularly on yellow-billed magpie and American crow due to susceptibility to WNV.

Workshops on HCPs. Assisted Dr. Michael Morrison with organizing and conducting a 2-day workshop on Habitat Conservation Plans, sponsored by Southern California Edison, and another 1-day workshop sponsored by PG&E. These Workshops were attended by academics, attorneys, and consultants with HCP experience. We guest-edited a Proceedings published in Environmental Management.

Mapping of biological resources along Highways 101, 46 and 41. Used GPS and GIS to delineate vegetation complexes and locations of special-status species along 26 miles of highway in San Luis Obispo County, 14 miles of highway and roadway in Monterey County, and in a large area north of Fresno, including within reclaimed gravel mining pits.

GPS mapping and monitoring at restoration sites and at Caltrans mitigation sites. Monitored the success of elderberry shrubs at one location, the success of willows at another location, and the response of wildlife to the succession of vegetation at both sites. Also used GPS to monitor the response of fossorial animals to yellow star-thistle eradication and natural grassland restoration efforts at Bear Valley in Colusa County and at the decommissioned Mather Air Force Base in Sacramento County.

Mercury effects on Red-legged Frog. Assisted Dr. Michael Morrison and US Fish and Wildlife Service in assessing the possible impacts of historical mercury mining on the federally listed California red-legged frog in Santa Clara County. Also measured habitat variables in streams.

Opposition to proposed No Surprises rule. Wrote a white paper and summary letter explaining scientific grounds for opposing the incidental take permit (ITP) rules providing ITP applicants and holders with general assurances they will be free of compliance with the Endangered Species Act once they adhere to the terms of a "properly functioning HCP." Submitted 188 signatures of scientists and environmental professionals concerned about No Surprises rule US Fish and Wildlife Service, National Marine Fisheries Service, all US Senators.

Natomas Basin Habitat Conservation Plan alternative. Designed narrow channel marsh to increase the likelihood of survival and recovery in the wild of giant garter snake, Swainson's hawk and Valley Elderberry Longhorn Beetle. The design included replication and interspersion of treatments for experimental testing of critical habitat elements. I provided a report to Northern Territories, Inc.

Assessments of agricultural production system and environmental technology transfer to China. Twice visited China and interviewed scientists, industrialists, agriculturalists, and the Directors of the Chinese Environmental Protection Agency and the Department of Agriculture to assess the need and possible pathways for environmental clean-up technologies and trade opportunities between the US and China.

Yolo County Habitat Conservation Plan. Conducted landscape ecology study of Yolo County to spatially prioritize allocation of mitigation efforts to improve ecosystem functionality within the

County from the perspective of 29 special-status species of wildlife and plants. Used a hierarchically structured indicators approach to apply principles of landscape and ecosystem ecology, conservation biology, and local values in rating land units. Derived GIS maps to help guide the conservation area design, and then developed implementation strategies.

Mountain lion track count. Developed and conducted a carnivore monitoring program throughout California since 1985. Species counted include mountain lion, bobcat, black bear, coyote, red and gray fox, raccoon, striped skunk, badger, and black-tailed deer. Vegetation and land use are also monitored. Track survey transect was established on dusty, dirt roads within randomly selected quadrats.

Sumatran tiger and other felids. Upon award of Fulbright Research Fellowship, I designed and initiated track counts for seven species of wild cats in Sumatra, including Sumatran tiger, fishing cat, and golden cat. Spent four months on Sumatra and Java in 1988, and learned Bahasa Indonesia, the official Indonesian language.

Wildlife in agriculture. Beginning as post-graduate research, I studied pocket gophers and other wildlife in 40 alfalfa fields throughout the Sacramento Valley, and I surveyed for wildlife along a 200 mile road transect since 1989 with a hiatus of 1996-2004. The data are analyzed using GIS and methods from landscape ecology, and the results published and presented orally to farming groups in California and elsewhere. I also conducted the first study of wildlife in cover crops used on vineyards and orchards.

Agricultural energy use and Tulare County groundwater study. Developed and analyzed a data base of energy use in California agriculture, and collaborated on a landscape (GIS) study of groundwater contamination across Tulare County, California.

Pocket gopher damage in forest clear-cuts. Developed gopher sampling methods and tested various poison baits and baiting regimes in the largest-ever field study of pocket gopher management in forest plantations, involving 68 research plots in 55 clear-cuts among 6 National Forests in northern California.

Risk assessment of exotic species in North America. Developed empirical models of mammal and bird species invasions in North America, as well as a rating system for assigning priority research and control to exotic species in California, based on economic, environmental, and human health hazards.

Peer Reviewed Publications

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Smallwood, K. S., D. A. Bell, E. L. Walther, E. Leyvas, S. Standish, J. Mount, B. Karas. 2018. Estimating wind turbine fatalities using integrated detection trials. Journal of Wildlife Management 82:1169-1184.

Smallwood, K. S. 2017. Long search intervals under-estimate bird and bat fatalities caused by

wind turbines. Wildlife Society Bulletin 41:224-230.

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Smallwood, K. S. 2013. Introduction: Wind-energy development and wildlife conservation. Wildlife Society Bulletin 37: 3-4.

Smallwood, K. S. 2013. Comparing bird and bat fatality-rate estimates among North American wind-energy projects. Wildlife Society Bulletin 37:19-33. + Online Supplemental Material.

Smallwood, K. S., L. Neher, J. Mount, and R. C. E. Culver. 2013. Nesting Burrowing Owl Abundance in the Altamont Pass Wind Resource Area, California. Wildlife Society Bulletin: 37:787-795.

Smallwood, K. S., D. A. Bell, B. Karas, and S. A. Snyder. 2013. Response to Huso and Erickson Comments on Novel Scavenger Removal Trials. Journal of Wildlife Management 77: 216-225.

Bell, D. A., and K. S. Smallwood. 2010. Birds of prey remain at risk. Science 330:913.

Smallwood, K. S., D. A. Bell, S. A. Snyder, and J. E. DiDonato. 2010. Novel scavenger removal trials increase estimates of wind turbine-caused avian fatality rates. Journal of Wildlife Management 74: 1089-1097 + Online Supplemental Material.

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Zhang, M., K. S. Smallwood, and E. Anderson. 2002. Relating indicators of ecological health and integrity to assess risks to sustainable agriculture and native biota. Pages 757-768 *in* D.J. Rapport, W.L. Lasley, D.E. Rolston, N.O. Nielsen, C.O. Qualset, and A.B. Damania (eds.), Managing for Healthy Ecosystems, Lewis Publishers, Boca Raton, Florida USA.

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Smallwood, K.S., and T.R. Smith. 2001. Study design and interpretation of Sorex density estimates. Annales Zoologi Fennici 38:141-161.

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Geng, S., Yixing Zhou, Minghua Zhang, and K. Shawn Smallwood. 2001. A Sustainable Agro-ecological Solution to Water Shortage in North China Plain (Huabei Plain). Environmental Planning and Management 44:345-355.

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Comments on Environmental Documents

I was retained or commissioned to comment on environmental planning and review documents, including:

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- Notes on Proposed Study Options for Trail Impacts on Northern Spotted Owl (2017; 4 pp);
- San Gorgonio Crossings EIR (2017; 22 pp);
- Replies to responses on Jupiter Project IS and MND (2017; 12 pp);
- MacArthur Transit Village Project Modified 2016 CEQA Analysis (2017; 12 pp);
- Central SoMa Plan DEIR (2017; 14 pp);
- Colony Commerce Center Specific Plan DEIR (2016; 16 pp);
- Fairway Trails Improvements MND (2016; 13 pp);
- Review of Avian-Solar Science Plan (2016; 28 pp);
- Replies to responses on Initial Study for Pyramid Asphalt (2016; 5 pp);
- Initial Study for Pyramid Asphalt (2016; 4 pp);
- Agua Mansa Distribution Warehouse Project Initial Study (2016; 14 pp);
- Santa Anita Warehouse IS and MND (2016; 12 pp);
- CapRock Distribution Center III DEIR (2016: 12 pp);
- Orange Show Logistics Center Initial Study and MND (2016; 9 pp);
- City of Palmdale Oasis Medical Village Project IS and MND (2016; 7 pp);
- Comments on proposed rule for incidental eagle take (2016, 49 pp);
- Grapevine Specific and Community Plan FEIR (2016; 25 pp);
- Grapevine Specific and Community Plan DEIR (2016; 15 pp);
- Clinton County Zoning Ordinance for Wind Turbine siting (2016);
- Hallmark at Shenandoah Warehouse Project Initial Study (2016; 6 pp);
- Tri-City Industrial Complex Initial Study (2016; 5 pp);
- Hidden Canyon Industrial Park Plot Plan 16-PP-02 (2016; 12 pp);
- Kimball Business Park DEIR (2016; 10 pp);
- Jupiter Project IS and MND (2016; 9 pp);
- Revised Draft Giant Garter Snake Recovery Plan of 2015 (2016, 18 pp);
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- Supplementary Reply Witness Statement Amherst Island Wind Farm, Ontario (2015, 38 pp);
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- Proposed Section 24 Specific Plan Agua Caliente Band of Cahuilla Indians DEIS (2015, 9 pp);
- Replies to comments 24 Specific Plan Agua Caliente Band of Cahuilla Indians FEIS (2015, 6 pp);
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- West Valley Logistics Center Specific Plan DEIR (2015, 10 pp);
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- Bay Delta Conservation Plan EIR/EIS (2014, 21 pp);
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- Addison and Rising Tree Wind Energy Project FEIR (2014, 12 pp);
- Alta East Wind Energy Project FEIS (2013, 23 pp);
- Blythe Solar Power Project Staff Assessment, California Energy Commission (2013, 16 pp);
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- Cuyama Solar Project DEIR (2014, 19 pp);
- Draft Desert Renewable Energy Conservation Plan (DRECP) EIR/EIS (2015, 49 pp);
- Kingbird Solar Photovoltaic Project EIR (2013, 19 pp);
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- Rising Tree Wind Energy Project DEIR (2014, 32 pp);
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- Declaration in opposition to BLM fracking (2013; 5 pp);
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- Reply to Staff Responses to Comments on Soccer Center Solar Project Mitigated Negative

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- Declaration on Initial Study and Proposed Negative Declaration for the Butte Water District 2012 Water Transfer Program (2012; 11 pp);
- Mount Signal and Calexico Solar Farm Projects DEIR (2011; 16 pp);
- City of Elk Grove Sphere of Influence EIR (2011; 28 pp);
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- Statement of Shawn Smallwood, Ph.D. Regarding Proposed Rabik/Gudath Project, 22611 Coleman Valley Road, Bodega Bay (CPN 10-0002) (2011; 4 pp);
- Declaration of K. Shawn Smallwood on Biological Impacts of the Ivanpah Solar Electric Generating System (ISEGS) (2011; 9 pp);
- Comments on Draft Eagle Conservation Plan Guidance (2011; 13 pp);
- Comments on Draft EIR/EA for Niles Canyon Safety Improvement Project (2011; 16 pp);
- Declaration of K. Shawn Smallwood, Ph.D., on Biological Impacts of the Route 84 Safety Improvement Project (2011; 7 pp);
- Rebuttal Testimony of Witness #22, K. Shawn Smallwood, Ph.D, on Behalf of Intervenors Friends of The Columbia Gorge & Save Our Scenic Area (2010; 6 pp);
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- Conditional Use Permit renewals from Alameda County for wind turbine operations in the Altamont Pass Wind Resource Area (2003; 41 pp);
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- Anderson Marketplace Draft Environmental Impact Report (2003: 18 pp + 3 plates of photos);
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- Response to testimony of experts at the East Altamont Energy Center evidentiary hearing on biological resources (2002: 9 pp);
- Revised Draft Environmental Impact Report, The Promenade (2002: 7 pp);
- Recirculated Initial Study for Calpine's proposed Pajaro Valley Energy Center (2002: 3 pp);
- UC Merced -- Declaration of Dr. Shawn Smallwood in support of petitioner's application for temporary restraining order and preliminary injunction (2002: 5 pp);
- Replies to response to comments in Final Environmental Impact Report, Atwood Ranch Unit III Subdivision (2003: 22 pp);
- Draft Environmental Impact Report, Atwood Ranch Unit III Subdivision (2002: 19 pp + 8 photos on 4 plates);
- California Energy Commission Staff Report on GWF Tracy Peaker Project (2002: 17 pp + 3 photos; follow-up report of 3 pp);
- Initial Study and Negative Declaration, Silver Bend Apartments, Placer County (2002: 13 pp);
- UC Merced Long-range Development Plan DEIR and UC Merced Community Plan DEIR (2001: 26 pp);
- Initial Study, Colusa County Power Plant (2001: 6 pp);
- Comments on Proposed Dog Park at Catlin Park, Folsom, California (2001: 5 pp + 4 photos);
- Pacific Lumber Co. (Headwaters) Habitat Conservation Plan and Environmental Impact Report (1998: 28 pp);
- Final Environmental Impact Report/Statement for Issuance of Take authorization for listed

species within the MSCP planning area in San Diego County, California (Fed. Reg. 62 (60): 14938, San Diego Multi-Species Conservation Program) (1997: 10 pp);
- Permit (PRT-823773) Amendment for the Natomas Basin Habitat Conservation Plan, Sacramento, CA (Fed. Reg. 63 (101): 29020-29021) (1998);
- Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). (Fed. Reg. 64(176): 49497-49498) (1999: 8 pp);
- Review of the Draft Recovery Plan for the Arroyo Southwestern Toad (*Bufo microscaphus californicus*) (1998);
- Ballona West Bluffs Project Environmental Impact Report (1999: oral presentation);
- California Board of Forestry's proposed amended Forest Practices Rules (1999);
- Negative Declaration for the Sunset Skyranch Airport Use Permit (1999);
- Calpine and Bechtel Corporations' Biological Resources Implementation and Monitoring Program (BRMIMP) for the Metcalf Energy Center (2000: 10 pp);
- California Energy Commission's Final Staff Assessment of the proposed Metcalf Energy Center (2000);
- US Fish and Wildlife Service Section 7 consultation with the California Energy Commission regarding Calpine and Bechtel Corporations' Metcalf Energy Center (2000: 4 pp);
- California Energy Commission's Preliminary Staff Assessment of the proposed Metcalf Energy Center (2000: 11 pp);
- Site-specific management plans for the Natomas Basin Conservancy's mitigation lands, prepared by Wildlands, Inc. (2000: 7 pp);
- Affidavit of K. Shawn Smallwood in Spirit of the Sage Council, et al. (Plaintiffs) vs. Bruce Babbitt, Secretary, U.S. Department of the Interior, et al. (Defendants), Injuries caused by the No Surprises policy and final rule which codifies that policy (1999: 9 pp).

Comments on other Environmental Review Documents:

- Proposed Regulation for California Fish and Game Code Section 3503.5 (2015: 12 pp);
- Statement of Overriding Considerations related to extending Altamont Winds, Inc.'s Conditional Use Permit PLN2014-00028 (2015; 8 pp);
- Draft Program Level EIR for Covell Village (2005; 19 pp);
- Bureau of Land Management Wind Energy Programmatic EIS Scoping document (2003: 7 pp.);
- NEPA Environmental Analysis for Biosafety Level 4 National Biocontainment Laboratory (NBL) at UC Davis (2003: 7 pp);
- Notice of Preparation of UC Merced Community and Area Plan EIR, on behalf of The Wildlife Society—Western Section (2001: 8 pp.);
- Preliminary Draft Yolo County Habitat Conservation Plan (2001; 2 letters totaling 35 pp.);
- Merced County General Plan Revision, notice of Negative Declaration (2001: 2 pp.);
- Notice of Preparation of Campus Parkway EIR/EIS (2001: 7 pp.);
- Draft Recovery Plan for the bighorn sheep in the Peninsular Range (*Ovis candensis*) (2000);
- Draft Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*), on behalf of The Wildlife Society—Western Section (2000: 10 pp.);
- Sierra Nevada Forest Plan Amendment Draft Environmental Impact Statement, on behalf of The Wildlife Society—Western Section (2000: 7 pp.);

- State Water Project Supplemental Water Purchase Program, Draft Program EIR (1997);
- Davis General Plan Update EIR (2000);
- Turn of the Century EIR (1999: 10 pp);
- Proposed termination of Critical Habitat Designation under the Endangered Species Act (Fed. Reg. 64(113): 31871-31874) (1999);
- NOA Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, termed the HCP 5-Point Policy Plan (Fed. Reg. 64(45): 11485 - 11490) (1999; 2 pp + attachments);
- Covell Center Project EIR and EIR Supplement (1997).

Position Statements I prepared the following position statements for the Western Section of The Wildlife Society, and one for nearly 200 scientists:

- Recommended that the California Department of Fish and Game prioritize the extermination of the introduced southern water snake in northern California. The Wildlife Society--Western Section (2001);
- Recommended that The Wildlife Society—Western Section appoint or recommend members of the independent scientific review panel for the UC Merced environmental review process (2001);
- Opposed the siting of the University of California's 10th campus on a sensitive vernal pool/grassland complex east of Merced. The Wildlife Society--Western Section (2000);
- Opposed the legalization of ferret ownership in California. The Wildlife Society--Western Section (2000);
- Opposed the Proposed "No Surprises," "Safe Harbor," and "Candidate Conservation Agreement" rules, including permit-shield protection provisions (Fed. Reg. Vol. 62, No. 103, pp. 29091-29098 and No. 113, pp. 32189-32194). This statement was signed by 188 scientists and went to the responsible federal agencies, as well as to the U.S. Senate and House of Representatives.

Posters at Professional Meetings

Leyvas, E. and K. S. Smallwood. 2015. Rehabilitating injured animals to offset and rectify wind project impacts. Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 9-12 March 2015.

Smallwood, K. S., J. Mount, S. Standish, E. Leyvas, D. Bell, E. Walther, B. Karas. 2015. Integrated detection trials to improve the accuracy of fatality rate estimates at wind projects. Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 9-12 March 2015.

Smallwood, K. S. and C. G. Thelander. 2005. Lessons learned from five years of avian mortality research in the Altamont Pass WRA. AWEA conference, Denver, May 2005.

Neher, L., L. Wilder, J. Woo, L. Spiegel, D. Yen-Nakafugi, and K.S. Smallwood. 2005. Bird's eye view on California wind. AWEA conference, Denver, May 2005.

Smallwood, K. S., C. G. Thelander and L. Spiegel. 2003. Toward a predictive model of avian

fatalities in the Altamont Pass Wind Resource Area. Windpower 2003 Conference and Convention, Austin, Texas.

Smallwood, K.S. and Eva Butler. 2002. Pocket Gopher Response to Yellow Star-thistle Eradication as part of Grassland Restoration at Decommissioned Mather Air Force Base, Sacramento County, California. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and Michael L. Morrison. 2002. Fresno kangaroo rat (*Dipodomys nitratoides*) Conservation Research at Resources Management Area 5, Lemoore Naval Air Station. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and E.L. Fitzhugh. 1989. Differentiating mountain lion and dog tracks. Third Mountain Lion Workshop, Prescott, AZ.

Smith, T. R. and K. S. Smallwood. 2000. Effects of study area size, location, season, and allometry on reported *Sorex* shrew densities. Annual Meeting of the Western Section of The Wildlife Society.

Presentations at Professional Meetings and Seminars

Repowering the Altamont Pass. Altamont Symposium, The Wildlife Society – Western Section, 5 February 2017.

Developing methods to reduce bird mortality in the Altamont Pass Wind Resource Area, 1999-2007. Altamont Symposium, The Wildlife Society – Western Section, 5 February 2017.

Conservation and recovery of burrowing owls in Santa Clara Valley. Santa Clara Valley Habitat Agency, Newark, California, 3 February 2017.

Mitigation of Raptor Fatalities in the Altamont Pass Wind Resource Area. Raptor Research Foundation Meeting, Sacramento, California, 6 November 2015.

From burrows to behavior: Research and management for burrowing owls in a diverse landscape. California Burrowing Owl Consortium meeting, 24 October 2015, San Jose, California.

The Challenges of repowering. Keynote presentation at Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 10 March 2015.

Research Highlights Altamont Pass 2011-2015. Scientific Review Committee, Oakland, California, 8 July 2015.

Siting wind turbines to minimize raptor collisions: Altamont Pass Wind Resource Area. US Fish and Wildlife Service Golden Eagle Working Group, Sacramento, California, 8 January 2015.

Evaluation of nest boxes as a burrowing owl conservation strategy. Sacramento Chapter of the Western Section, The Wildlife Society. Sacramento, California, 26 August 2013.

Predicting collision hazard zones to guide repowering of the Altamont Pass. Conference on wind

power and environmental impacts. Stockholm, Sweden, 5-7 February 2013.

Impacts of Wind Turbines on Wildlife. California Council for Wildlife Rehabilitators, Yosemite, California, 12 November 2012.

Impacts of Wind Turbines on Birds and Bats. Madrone Audubon Society, Santa Rosa, California, 20 February 2012.

Comparing Wind Turbine Impacts across North America. California Energy Commission Staff Workshop: Reducing the Impacts of Energy Infrastructure on Wildlife, 20 July 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. California Energy Commission Staff Workshop: Reducing the Impacts of Energy Infrastructure on Wildlife, 20 July 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. Alameda County Scientific Review Committee meeting, 17 February 2011

Comparing Wind Turbine Impacts across North America. Conference on Wind energy and Wildlife impacts, Trondheim, Norway, 3 May 2011.

Update on Wildlife Impacts in the Altamont Pass Wind Resource Area. Raptor Symposium, The Wildlife Society—Western Section, Riverside, California, February 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. Raptor Symposium, The Wildlife Society - Western Section, Riverside, California, February 2011.

Wildlife mortality caused by wind turbine collisions. Ecological Society of America, Pittsburgh, Pennsylvania, 6 August 2010.

Map-based repowering and reorganization of a wind farm to minimize burrowing owl fatalities. California burrowing Owl Consortium Meeting, Livermore, California, 6 February 2010.

Environmental barriers to wind power. Getting Real About Renewables: Economic and Environmental Barriers to Biofuels and Wind Energy. A symposium sponsored by the Environmental & Energy Law & Policy Journal, University of Houston Law Center, Houston, 23 February 2007.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Meeting with Japan Ministry of the Environment and Japan Ministry of the Economy, Wild Bird Society of Japan, and other NGOs Tokyo, Japan, 9 November 2006.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Symposium on bird collisions with wind turbines. Wild Bird Society of Japan, Tokyo, Japan, 4 November 2006.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. California Society for Ecological Restoration (SERCAL) 13th Annual Conference, UC Santa

Barbara, 27 October 2006.

Fatality associations as the basis for predictive models of fatalities in the Altamont Pass Wind Resource Area. EEI/APLIC/PIER Workshop, 2006 Biologist Task Force and Avian Interaction with Electric Facilities Meeting, Pleasanton, California, 28 April 2006.

Burrowing owl burrows and wind turbine collisions in the Altamont Pass Wind Resource Area. The Wildlife Society - Western Section Annual Meeting, Sacramento, California, February 8, 2006.

Mitigation at wind farms. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Incorporating data from the California Wildlife Habitat Relationships (CWHR) system into an impact assessment tool for birds near wind farms. Shawn Smallwood, Kevin Hunting, Marcus Yee, Linda Spiegel, Monica Parisi. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Toward indicating threats to birds by California's new wind farms. California Energy Commission, Sacramento, May 26, 2005.

Avian collisions in the Altamont Pass. California Energy Commission, Sacramento, May 26, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. EPRI Environmental Sector Council, Monterey, California, February 17, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. The Wildlife Society—Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Associations between avian fatalities and attributes of electric distribution poles in California. The Wildlife Society - Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Minimizing avian mortality in the Altamont Pass Wind Resources Area. UC Davis Wind Energy Collaborative Forum, Palm Springs, California, December 14, 2004.

Selecting electric distribution poles for priority retrofitting to reduce raptor mortality. Raptor Research Foundation Meeting, Bakersfield, California, November 10, 2004.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. Annual Meeting of the Society for Ecological Restoration, South Lake Tahoe, California, October 16, 2004.

Lessons learned from five years of avian mortality research at the Altamont Pass Wind Resources Area in California. The Wildlife Society Annual Meeting, Calgary, Canada, September 2004.

The ecology and impacts of power generation at Altamont Pass. Sacramento Petroleum Association,

Sacramento, California, August 18, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Consortium meeting, Hayward, California, February 7, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Symposium, Sacramento, November 2, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. National Wind Coordinating Committee, Washington, D.C., November 17, 2003.

Raptor Behavior at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

California mountain lions. Ecological & Environmental Issues Seminar, Department of Biology, California State University, Sacramento, November, 2000.

Intra- and inter-turbine string comparison of fatalities to animal burrow densities at Altamont Pass. National Wind Coordinating Committee, Carmel, California, May, 2000.

Using a Geographic Positioning System (GPS) to map wildlife and habitat. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Suggested standards for science applied to conservation issues. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

The indicators framework applied to ecological restoration in Yolo County, California. Society for Ecological Restoration, September 25, 1999.

Ecological restoration in the context of animal social units and their habitat areas. Society for Ecological Restoration, September 24, 1999.

Relating Indicators of Ecological Health and Integrity to Assess Risks to Sustainable Agriculture and Native Biota. International Conference on Ecosystem Health, August 16, 1999.

A crosswalk from the Endangered Species Act to the HCP Handbook and real HCPs. Southern California Edison, Co. and California Energy Commission, March 4-5, 1999.

Mountain lion track counts in California: Implications for Management. Ecological & Environmental Issues Seminar, Department of Biological Sciences, California State University, Sacramento, November 4, 1998.

"No Surprises" -- Lack of science in the HCP process. California Native Plant Society Annual Conservation Conference, The Presidio, San Francisco, September 7, 1997.

In Your Interest. A half hour weekly show aired on Channel 10 Television, Sacramento. In this episode, I served on a panel of experts discussing problems with the implementation of the Endangered Species Act. Aired August 31, 1997.

Spatial scaling of pocket gopher (*Geomyidae*) density. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Estimating prairie dog and pocket gopher burrow volume. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Ten years of mountain lion track survey. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Study and interpretive design effects on mountain lion density estimates. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Small animal control. Session moderator and speaker at the California Farm Conference, Sacramento, California, Feb. 28, 1995.

Small animal control. Ecological Farming Conference, Asylomar, California, Jan. 28, 1995.

Habitat associations of the Swainson's Hawk in the Sacramento Valley's agricultural landscape. 1994 Raptor Research Foundation Meeting, Flagstaff, Arizona.

Alfalfa as wildlife habitat. Seed Industry Conference, Woodland, California, May 4, 1994.

Habitats and vertebrate pests: impacts and management. Managing Farmland to Bring Back Game Birds and Wildlife to the Central Valley. Yolo County Resource Conservation District, U.C. Davis, February 19, 1994.

Management of gophers and alfalfa as wildlife habitat. Orland Alfalfa Production Meeting and Sacramento Valley Alfalfa Production Meeting, February 1 and 2, 1994.

Patterns of wildlife movement in a farming landscape. Wildlife and Fisheries Biology Seminar Series: Recent Advances in Wildlife, Fish, and Conservation Biology, U.C. Davis, Dec. 6, 1993.

Alfalfa as wildlife habitat. California Alfalfa Symposium, Fresno, California, Dec. 9, 1993.

Management of pocket gophers in Sacramento Valley alfalfa. California Alfalfa Symposium, Fresno, California, Dec. 8, 1993.

Association analysis of raptors in a farming landscape. Plenary speaker at Raptor Research Foundation Meeting, Charlotte, North Carolina, Nov. 6, 1993.

Landscape strategies for biological control and IPM. Plenary speaker, International Conference on Integrated Resource Management and Sustainable Agriculture, Beijing, China, Sept. 11, 1993.

Landscape Ecology Study of Pocket Gophers in Alfalfa. Alfalfa Field Day, U.C. Davis, July 1993.

Patterns of wildlife movement in a farming landscape. Spatial Data Analysis Colloquium, U.C. Davis, August 6, 1993.

Sound stewardship of wildlife. Veterinary Medicine Seminar: Ethics of Animal Use, U.C. Davis. May 1993.

Landscape ecology study of pocket gophers in alfalfa. Five County Grower's Meeting, Tracy, California. February 1993.

Turbulence and the community organizers: The role of invading species in ordering a turbulent system, and the factors for invasion success. Ecology Graduate Student Association Colloquium, U.C. Davis. May 1990.

Evaluation of exotic vertebrate pests. Fourteenth Vertebrate Pest Conference, Sacramento, California. March 1990.

Analytical methods for predicting success of mammal introductions to North America. The Western Section of the Wildlife Society, Hilo, Hawaii. February 1988.

A state-wide mountain lion track survey. Sacramento County Dept Parks and Recreation. April 1986.

The mountain lion in California. Davis Chapter of the Audubon Society. October 1985.

Ecology Graduate Student Seminars, U.C. Davis, 1985-1990: Social behavior of the mountain lion; Mountain lion control; Political status of the mountain lion in California.

Other forms of Participation at Professional Meetings

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Berlin, Germany, March 2015.
- Scientific Committee, Conference on Wind energy and Wildlife impacts, Stockholm, Sweden, February 2013.
- Workshop co-presenter at Birds & Wind Energy Specialist Group (BAWESG) Information sharing week, Bird specialist studies for proposed wind energy facilities in South Africa, Endangered Wildlife Trust, Darling, South Africa, 3-7 October 2011.
- Scientific Committee, Conference on Wind energy and Wildlife impacts, Trondheim, Norway, 2-5 May 2011.
- Chair of Animal Damage Management Session, The Wildlife Society, Annual Meeting, Reno, Nevada, September 26, 2001.

- Chair of Technical Session: Human communities and ecosystem health: Comparing perspectives and making connection. Managing for Ecosystem Health, International Congress on Ecosystem Health, Sacramento, CA August 15-20, 1999.

- Student Awards Committee, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

- Student Mentor, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Printed Mass Media

Smallwood, K.S., D. Mooney, and M. McGuinness. 2003. We must stop the UCD biolab now. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2002. Spring Lake threatens Davis. Op-Ed to the Davis Enterprise.

Smallwood, K.S. Summer, 2001. Mitigation of habitation. The Flatlander, Davis, California.

Entrikan, R.K. and K.S. Smallwood. 2000. Measure O: Flawed law would lock in new taxes. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2000. Davis delegation lobbies Congress for Wildlife conservation. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 1998. Davis Visions. The Flatlander, Davis, California.

Smallwood, K.S. 1997. Last grab for Yolo's land and water. The Flatlander, Davis, California.

Smallwood, K.S. 1997. The Yolo County HCP. Op-Ed to the Davis Enterprise.

Radio/Television

PBS News Hour,

FOX News, Energy in America: Dead Birds Unintended Consequence of Wind Power Development, August 2011.

KXJZ Capital Public Radio -- Insight (Host Jeffrey Callison). Mountain lion attacks (with guest Professor Richard Coss). 23 April 2009;

KXJZ Capital Public Radio -- Insight (Host Jeffrey Callison). Wind farm Rio Vista Renewable Power. 4 September 2008;

KQED QUEST Episode #111. Bird collisions with wind turbines. 2007;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. December 27, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. May 3, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. February 8, 2001;

KDVS Speaking in Tongues (host Ron Glick & Shawn Smallwood), California Energy Crisis: 1 hour. Jan. 25, 2001;

KDVS Speaking in Tongues (host Ron Glick), Headwaters Forest HCP: 1 hour. 1998;

Davis Cable Channel (host Gerald Heffernon), Burrowing owls in Davis: half hour. June, 2000;

Davis Cable Channel (hosted by Davis League of Women Voters), Measure O debate: 1 hour. October, 2000;

KXTV 10, In Your Interest, The Endangered Species Act: half hour. 1997.

Reviews of Journal Papers (Scientific journals for whom I've provided peer review)

Journal	Journal
American Naturalist	Journal of Animal Ecology
Journal of Wildlife Management	Western North American Naturalist
Auk	Journal of Raptor Research
Biological Conservation	National Renewable Energy Lab reports
Canadian Journal of Zoology	Oikos
Ecosystem Health	The Prairie Naturalist
Environmental Conservation	Restoration Ecology
Environmental Management	Southwestern Naturalist
Functional Ecology	The Wildlife Society--Western Section Trans.
Journal of Zoology (London)	Proc. Int. Congress on Managing for Ecosystem Health
Journal of Applied Ecology	Transactions in GIS
Ecology	Tropical Ecology
Wildlife Society Bulletin	Peer J
Biological Control	The Condor

Committees

- Scientific Review Committee, Alameda County, Altamont Pass Wind Resource Area
- Ph.D. Thesis Committee, Steve Anderson, University of California, Davis
- MS Thesis Committee, Marcus Yee, California State University, Sacramento

Other Professional Activities or Products

Testified in Federal Court in Denver during 2005 over the fate of radio-nuclides in the soil at Rocky Flats Plant after exposure to burrowing animals. My clients won a judgment of $553,000,000. I have also testified in many other cases of litigation under CEQA, NEPA, the Warren-Alquist Act, and other environmental laws. My clients won most of the cases for which I testified.

Testified before Environmental Review Tribunals in Ontario, Canada regarding proposed White Pines, Amherst Island, and Fairview Wind Energy projects.

Testified in Skamania County Hearing in 2009 on the potential impacts of zoning the County for development of wind farms and hazardous waste facilities.

Testified in deposition in 2007 in the case of O'Dell et al. vs. FPL Energy in Houston, Texas.

Testified in Klickitat County Hearing in 2006 on the potential impacts of the Windy Point Wind Farm.

Memberships in Professional Societies

The Wildlife Society
Raptor Research Foundation

Honors and Awards

Fulbright Research Fellowship to Indonesia, 1987
J.G. Boswell Full Academic Scholarship, 1981 college of choice
Certificate of Appreciation, The Wildlife Society—Western Section, 2000, 2001
Northern California Athletic Association Most Valuable Cross Country Runner, 1984
American Legion Award, Corcoran High School, 1981, and John Muir Junior High, 1977
CIF Section Champion, Cross Country in 1978
CIF Section Champion, Track & Field 2 mile run in 1981
National Junior Record, 20 kilometer run, 1982
National Age Group Record, 1500 meter run, 1978

Community Activities

District 64 Little League Umpire, 2003-2007
Dixon Little League Umpire, 2006-07
Davis Little League Chief Umpire and Board member, 2004-2005
Davis Little League Safety Officer, 2004-2005
Davis Little League Certified Umpire, 2002-2004
Davis Little League Scorekeeper, 2002
Davis Visioning Group member
Petitioner for Writ of Mandate under the California Environmental Quality Act against City of Woodland decision to approve the Spring Lake Specific Plan, 2002
Served on campaign committees for City Council candidates

Representative Clients/Funders

Law Offices of Stephan C. Volker	EDF Renewables
Blum Collins, LLP	National Renewable Energy Lab
Eric K. Gillespie Professional Corporation	Altamont Winds LLC
Law Offices of Berger & Montague	Salka Energy
Lozeau | Drury LLP	Comstocks Business (magazine)
Law Offices of Roy Haber	BioResource Consultants
Law Offices of Edward MacDonald	Tierra Data
Law Office of John Gabrielli	Black and Veatch
Law Office of Bill Kopper	Terry Preston, Wildlife Ecology Research Center
Law Office of Donald B. Mooney	EcoStat, Inc.
Law Office of Veneruso & Moncharsh	US Navy
Law Office of Steven Thompson	US Department of Agriculture
Law Office of Brian Gaffney	US Forest Service
California Wildlife Federation	US Fish & Wildlife Service
Defenders of Wildlife	US Department of Justice
Sierra Club	California Energy Commission
National Endangered Species Network	California Office of the Attorney General
Spirit of the Sage Council	California Department of Fish & Wildlife
The Humane Society	California Department of Transportation
Hagens Berman LLP	California Department of Forestry
Environmental Protection Information Center	California Department of Food & Agriculture
Goldberg, Kamin & Garvin, Attorneys at Law	Ventura County Counsel
Californians for Renewable Energy (CARE)	County of Yolo
Seatuck Environmental Association	Tahoe Regional Planning Agency
Friends of the Columbia Gorge, Inc.	Sustainable Agriculture Research & Education Program
Save Our Scenic Area	Sacramento-Yolo Mosquito and Vector Control District
Alliance to Protect Nantucket Sound	East Bay Regional Park District
Friends of the Swainson's Hawk	County of Alameda
Alameda Creek Alliance	Don & LaNelle Silverstien
Center for Biological Diversity	Seventh Day Adventist Church
California Native Plant Society	Escuela de la Raza Unida
Endangered Wildlife Trust	Susan Pelican and Howard Beeman
and BirdLife South Africa	Residents Against Inconsistent Development, Inc.
AquAlliance	Bob Sarvey
Oregon Natural Desert Association	Mike Boyd
Save Our Sound	Hillcroft Neighborhood Fund
G3 Energy and Pattern Energy	Joint Labor Management Committee, Retail Food Industry
Emerald Farms	Lisa Rocca
Pacific Gas & Electric Co.	Kevin Jackson
Southern California Edison Co.	Dawn Stover and Jay Letto
Georgia-Pacific Timber Co.	Nancy Havassy
Northern Territories Inc.	Catherine Portman (for Brenda Cedarblade)
David Magney Environmental Consulting	Ventus Environmental Solutions, Inc.
Wildlife History Foundation	Panorama Environmental, Inc.
NextEra Energy Resources, LLC	Adams Broadwell Professional Corporation
Ogin, Inc.	

Representative special-status species experience

Common name	Species name	Description
Field experience		
California red-legged frog	*Rana aurora draytonii*	Protocol searches; Many detections
Foothill yellow-legged frog	*Rana boylii*	Presence surveys; Many detections
Western spadefoot	*Spea hammondii*	Presence surveys; Few detections
California tiger salamander	*Ambystoma californiense*	Protocol searches; Many detections
Coast range newt	*Taricha torosa torosa*	Searches and multiple detections
Blunt-nosed leopard lizard	*Gambelia sila*	Detected in San Luis Obispo County
California horned lizard	*Phrynosoma coronatum frontale*	Searches; Many detections
Western pond turtle	*Clemmys marmorata*	Searches; Many detections
San Joaquin kit fox	*Vulpes macrotis mutica*	Protocol searches; detections
Sumatran tiger	*Panthera tigris*	Track surveys in Sumatra
Mountain lion	*Puma concolor californicus*	Research and publications
Point Arena mountain beaver	*Aplodontia rufa nigra*	Remote camera operation
Giant kangaroo rat	*Dipodomys ingens*	Detected in Cholame Valley
San Joaquin kangaroo rat	*Dipodomys nitratoides*	Monitoring & habitat restoration
Monterey dusky-footed woodrat	*Neotoma fuscipes luciana*	Non-target captures and mapping of dens
Salt marsh harvest mouse	*Reithrodontomys raviventris*	Habitat assessment, monitoring
Salinas harvest mouse	*Reithrodontomys megalotus distichlus*	Captures; habitat assessment
Bats		Thermal imaging surveys
California clapper rail	*Rallus longirostris*	Surveys and detections
Golden eagle	*Aquila chrysaetos*	Numerical & behavioral surveys
Swainson's hawk	*Buteo swainsoni*	Numerical & behavioral surveys
Northern harrier	*Circus cyaeneus*	Numerical & behavioral surveys
White-tailed kite	*Elanus leucurus*	Numerical & behavioral surveys
Loggerhead shrike	*Lanius ludovicianus*	Large area surveys
Least Bell's vireo	*Vireo bellii pusillus*	Detected in Monterey County
Willow flycatcher	*Empidonax traillii extimus*	Research at Sierra Nevada breeding sites
Burrowing owl	*Athene cunicularia hypugia*	Numerical & behavioral surveys
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Monitored success of relocation and habitat restoration
Analytical		
Arroyo southwestern toad	*Bufo microscaphus californicus*	Research and report.
Giant garter snake	*Thamnophis gigas*	Research and publication
Northern goshawk	*Accipiter gentilis*	Research and publication
Northern spotted owl	*Strix occidentalis*	Research and reports
Alameda whipsnake	*Masticophis lateralis euryxanthus*	Expert testimony

EXHIBIT B

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

2656 29th Street, Suite 201
Santa Monica, CA 90405

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(949) 887-9013
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Paul E. Rosenfeld, PhD
(310) 795-2335
prosenfeld@swape.com

August 6, 2020

Aaron Messing
Adams Broadwell Joseph & Cardozo
601 Gateway Blvd., Suite 1000
South San Francisco, CA 94080

Subject: Comments on Wister Solar Energy Facility Project (SCH No. 2019110140)

Dear Mr. Messing,

We have reviewed the June 2020 Draft Environmental Impact Report ("DEIR") for the Wister Solar Energy Facility Project ("Project") located in the unincorporated area of Imperial County ("City"). The Project proposes to construct solar energy generation equipment and associated facilities, including a 52,500-SF substation and access roads, as well as a 2,500-foot gen-tie line and fiberoptic cable on the 100-acre Project site.

Our review concludes that the DEIR fails to adequately evaluate the Project's hazards and hazardous materials, air quality, health risk, and greenhouse gas impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project are underestimated and inadequately addressed. An updated EIR should be prepared to adequately assess and mitigate the potential hazards and hazardous materials, air quality, health risk, and greenhouse gas impacts that the project may have on the surrounding environment. F.74

Hazards and Hazardous Materials

Inadequate Analysis of Impacts

A Phase I Environmental Site Assessment (ESA) was not prepared for the Project site. The preparation of a Phase I ESA is a common practice in CEQA matters to identify hazardous materials issues that may pose a risk to the public, workers, or the environment, and which may require further investigation through the conduct of a Phase II ESA. The DEIR only conducted a regulatory database search of the "Cortese List" (p. 6-2) which does not suffice for disclosure of impacts.

Standards for performing a Phase I ESA have been established by the US EPA and the American Society for Testing and Materials Standards (ASTM).[1] Phase I ESAs are conducted to identify conditions indicative of releases of hazardous substances and include:

- a review of all known sites in the vicinity of the subject property that are on regulatory agency databases undergoing assessment or cleanup activities;
- an inspection;
- interviews with people knowledgeable about the property; and
- recommendations for further actions to address potential hazards.

Phase I ESAs conclude with the identification of any "recognized environmental conditions" (RECs) and recommendations to address such conditions. A REC is the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. If RECs are identified, then a Phase II ESA generally follows, which includes the collection of soil, soil vapor and groundwater samples, as necessary, to identify the extent of contamination and the need for cleanup to reduce exposure potential to the public.

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The preparation of a Phase I ESA is especially important because there is an idle geothermal well on the Project site. The well (Well No. 02591491) is in the northwest quarter of the Project site. According to the DEIR, "the geothermal well would be avoided by the proposed project. Implementation of the proposed project would not impact geothermal wells" (p. 6-3). A Phase I is necessary to examine, through an inspection, the geothermal well and any evidence of leakage of well fluids or any other associated chemicals that might constitute a recognized environmental condition.

Consistent with professional due diligence procedures commonly used in CEQA proceedings, a Phase I ESA, completed by a licensed environmental professional is necessary for inclusion in a revised EIR to identify recognized environmental conditions, if any, at the proposed Project site, including those associated with the idled geothermal well.

If a REC is identified, a Phase II should be conducted to sample for potential contaminants in soil (including pesticides), soil vapor and groundwater. Any contamination that is identified above regulatory screening levels, including California Office of Environmental Health Hazard Assessment's Soil Screening Numbers[2], should be further evaluated and cleaned up, if necessary, in coordination with the Regional Water Quality Control Board and the California Department of Toxics Substances Control.

Valley Fever Potential has not been Evaluated

The DEIR does not consider at all the potential for Project construction to increase the incidence of Valley Fever, a disease that can be caused by inhalation of spores of a soil-dwelling fungus. The impact

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[1] http://www.astm.org/Standards/E1527.htm
[2] http://oehha.ca.gov/risk/chhsltable.html

of Valley Fever on workers constructing large, industrial-scale solar projects was documented in a study examining the October 2011–April 2014 timeframe, a period where 44 California solar construction workers were diagnosed with symptom onset.[3] A revised DEIR must be revised to evaluate Valley Fever impacts resulting from Project construction and to include additional mitigation.

Valley Fever is caused by inhaling the spores of a soil-dwelling fungus, *Coccidioides immitis.*[4] The spores become airborne when infected soils are disturbed during construction activities, agricultural operations, dust storms, or during earthquakes. A 2012 study documented that between 1990 and 2008, more than 3,000 people died in the United States from Valley Fever with about half in California.[5] In recent years, reported Valley Fever cases in southwestern Unites States have increased dramatically.[6]

F.75, cont.

No known cure exists for the disease and there is no vaccine.[7] Common symptoms of Valley Fever include fatigue, fever, cough, headaches, breathing difficulties, rash, muscle aches, and joint pain. Advanced symptoms are marked by chronic pneumonia, meningitis, skin lesions and bone or joint infections. Pneumonia stemming from Valley Fever becomes evident 13 weeks after infection.[8] Project construction and operation will generate dust which is one of the primary routes of exposure for contracting Valley Fever.[9] Construction workers are susceptible to contracting Valley Fever and are one of the most at-risk populations.[10]

The disease is debilitating and prevents those who have contracted Valley Fever from working.[11] The longest period of disability from occupational exposure in California is to construction workers, with 62%

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[3] Coccidioidomycosis among Workers Constructing Solar Power Farms, California, USA, 2011–2014, http://wwwnc.cdc.gov/eid/article/21/11/15-0129_article
[4] http://www.cdc.gov/fungal/diseases/coccidioidomycosis/definition.html
[5] Jennifer Y. Huang, Benjamin Bristow, Shira Shafir, and Frank Sorvillo, Coccidioidomycosis-associated Deaths, United States, 1990–2008; http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3559166/
[6] Center for Disease Control; Fungal Pneumonia: A Silent Epidemic, Coccidioidomycosis (Valley Fever); http://www.cdc.gov/fungal/pdf/cocci-fact-sheet-sw-us-508c.pdf
[7] http://www.cdc.gov/fungal/diseases/coccidioidomycosis/risk-prevention.html.
[8] *See, e.g.*, Lisa Valdivia, David Nix, Mark Wright, Elizabeth Lindberg, Timothy Fagan, Donald Lieberman, Prien Stoffer, Neil M. Ampel, and John N. Galgiani, Coccidioidomycosis as a Common Cause of Community-acquired Pneumonia, Emerging Infectious Diseases, v. 12, no. 6, June 2006; http://europepmc.org/articles/PMC3373055.
[9] Rafael Laniado-Laborin, Expanding Understanding of Epidemiology of Coccidioidomycosis in the Western Hemisphere, Ann. N.Y. Acad. Sci., v. 111, 2007, pp. 20-22;
Frederick S. Fisher, Mark W. Bultman, Suzanne M. Johnson, Demosthenes Pappagianis, and Erik Zaborsky Coccidioides Niches and Habitat Parameters in the Southwestern United States, a Matter of Scale, Ann. N.Y. Acad. Sci., No. 1111, 2007, pp. 47-72 ("All of the examined soil locations are noteworthy as generally 50% of the individuals who were exposed to the dust or were excavating dirt at the sites were infected.")
[10] Lawrence L. Schmelzer and R. Tabershaw, Exposure Factors in Occupational Coccidioidomycosis, Am. J. Public Health Nations Health, v. 58, no. 1, 1968, pp. 107-113, Table 3;
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1228046/?page=1
[11] Frank E. Swatek, Ecology of *Coccidioides Immitis*, Mycopathologia et Mycologia Applicata, V. 40, Nos. 1-2, pp. 3-12, 1970.

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of the reported cases resulting in over 60 days of lost work.[12] Another study estimated the average hospital stay for each (non-construction work) case of coccidioidomycosis at 35 days.[13]

The potentially exposed population is much larger than construction workers on or adjacent to the Project site because dust generated during Project construction will carry the very small spores – 0.002-0.005 millimeters in diameter – into other areas, potentially exposing large segments of the public.[14,15]

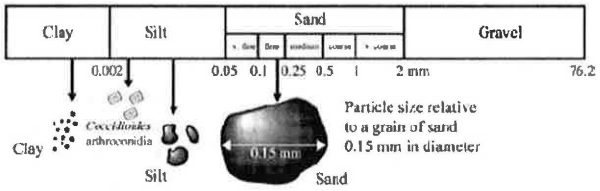

Figure 4: Size of cocci spores compared to soil particles (in mm)
(from: Fisher et al., 2007, Fig. 3)

F.75, cont.

Valley Fever spores have been documented to travel as much as 500 miles[16] and dust raised during construction could potentially expose a large number of people located miles away.

A revised DEIR should consider the following mitigation measures that would be specific to Valley Fever:

1. Minimize Exposure to Potential Valley Fever–Containing Dust through:
   - Cleaning equipment and vehicles of dust
   - Conducting earth-moving activities downwind of worker when possible
   - Spraying areas to be graded with water
   - Ceasing work if water runs out until a water truck can return
   - Using earth-moving vehicles with closed-cabs and equipped with a HEPA-filtered air systems
   - Training workers about Valley Fever and proving informational handouts.
2. Providing respirators to workers when requested and providing training on the proper use of personal protective equipment.
3. Payment of a monetary fee to Imperial County for implementation of Valley Fever public awareness programs.

[12] Schmelzer and Tabershaw, 1968, Table 4.
[13] Demosthenes Pappagianis and Hans Einstein, Tempest from Tehachapi Takes Toll or Coccidioides Conveyed Aloft and Afar, West J. Med., v. 129, Dec. 1978, pp. 527-530; http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1238466/pdf/westjmed00256-0079.pdf.
[14] Schmelzer and Tabershaw, 1968, p. 110; Pappagianis and Einstein, 1978.
[15] Pappagianis and Einstein, 1978, p. 527 ("The northern areas were not directly affected by the ground level windstorm that had struck Kern County but the dust was lifted to several thousand feet elevation and, borne on high currents, the soil and arthrospores along with some moisture were gently deposited on sidewalks and automobiles as "a mud storm" that vexed the residents of much of California." The storm originating in Kern County, for example, had major impacts in the San Francisco Bay Area and Sacramento).
[16] David Filip and Sharon Filip, Valley Fever Epidemic, Golden Phoenix Books, 2008, p. 24.

4. To require a respiratory protection program that is compliant with California Code of Regulations, Title 8, Section 5144.[17]

F.75, cont.

Implementation of these mitigation measures is feasible and would significantly reduce public health impacts. A revised DEIR must be revised to include these mitigation measures and to acknowledge the potential impact of an increase in the incidence in Valley Fever caused by Project construction.

Air Quality

Unsubstantiated Input Parameters Used to Estimate Project Emissions

The DEIR's air quality analysis relies on emissions calculated with CalEEMod.2016.3.2.[18] CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.[19] Once all of the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These output files disclose to the reader what parameters were utilized in calculating the Project's air pollutant emissions and make known which default values were changed as well as provide justification for the values selected.[20]

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As previously stated, the DEIR's air quality analysis relies on air pollutant emissions calculated using CalEEMod. When reviewing the Project's CalEEMod output files, provided in the Air Quality Technical Study as Appendix D to the DEIR, we found that several model inputs were not consistent with information disclosed in the DEIR. As a result, the Project's construction and operational emissions are underestimated. An updated EIR should be prepared to include an updated air quality analysis that adequately evaluates the impacts that construction and operation of the Project will have on local and regional air quality.

Use of an Incorrect Land Use Size

According to the DEIR, the Project proposes the construction of solar energy generation equipment, including 12 blocks of 2,520 3.5-foot by 4.8-foot PV panels, a 300-foot by 175-foot substation, and a fiberoptic cable and gen-tie line (p. 2-9 – 2-11). As such, the Project would include 508,032-SF[21] of PV

F.77

[17] California Department of Public Health and California Department of Industrial Relations, Protection from Valley Fever https://www.dir.ca.gov/dosh/valley-fever-home.html

[18] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4.

[19] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 1, 9.

[20] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 11, 12 – 13. A key feature of the CalEEMod program is the "remarks" feature, where the user explains why a default setting was replaced by a "user defined" value. These remarks are included in the report.

[21] Calculated: (3.5 feet * 4 feet) * (2,520 panels) * (12 blocks) = 508,032-SF of PV panels.

panels and a 52,500-SF substation, as well as a fiber optic cable and gen-tie line. However, review of the Project's operational CalEEMod model, "Wister Solar Project - Operational Emissions," demonstrates that the model included 0-acres and 0-SF of "User Defined Industrial" land use space (see excerpt below) (Appendix D, pp. 50, 69, 84).

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

As you can see in the excerpt above, the Project's operational model fails to include the PV panels and the substation facility. This presents an issue, as the land use type and size features are used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations.[22] The square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts). By failing to include the proposed PV panels and substation, the model underestimates the Project's operational emissions and should not be relied upon to determine Project significance.

Unsubstantiated Changes to Operational Vehicle Fleet Mix

F.77, cont.

Review of the Project's CalEEMod output files demonstrates that the model included several changes to the Project's anticipated operational vehicle fleet mix percentage values (see excerpt below) (Appendix D, pp. 51-52, 70-71, 85-86).

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.12	0.00
tblFleetMix	LDA	0.51	0.34
tblFleetMix	LDT1	0.03	0.33
tblFleetMix	LDT2	0.16	0.33
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.1290e-003	0.00
tblFleetMix	MCY	5.2230e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	6.9400e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	3.3610e-003	0.00
tblFleetMix	SBUS	7.3900e-004	0.00
tblFleetMix	UBUS	1.1890e-003	0.00

As you can see in the excerpt above, the fleet mix percentage values for heavy-heavy duty trucks ("HHD"), light-heavy-duty trucks ("LHD1" and "LHD2"), medium-duty trucks ("MDV"), motorcycles ("MCY"), motor homes ("MH"), medium-heavy duty diesel trucks ("MHD"), and buses ("OBUS," "SBUS," and "UBUS") were reduced to 0, while the fleet mix percentage values for light-duty trucks ("LDT1" and "LDT2") were increased. As previously mentioned, the CalEEMod User's Guide requires any changes to

[22] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 18.

model defaults be justified.[23] According to the "User Entered Comments & Non-Default Data" table, the justification provided for these changes is: "Workers vehicle class assumed LD_Mix, consistent with construction workers vehicles" (Appendix D, pp. 51, 70, 85). However, the justification provided refers to the Project's *construction-related* vehicle fleet mix, while these changes impact the Project's *operational* vehicle fleet mix. Furthermore, the DEIR fails to justify this statement or mention these changes. As such, we cannot verify that these revised fleet mix percentages apply to the proposed Project. This presents an issue, as CalEEMod utilizes the vehicle fleet mix to calculate the emissions associated with on-road motor vehicle use throughout the Project's operation.[24] By including unsubstantiated changes to the Project's anticipated vehicle fleet mix, the model may underestimate the Project's mobile-related operational emissions and should not be relied upon to determine Project significance.

F.77, cont.

Underestimated Operational Vehicle Trips

Review of the Project's CalEEMod output files demonstrates that the model included only 4 Weekday, 0 Saturday, and 0 Sunday daily operational vehicle trips (see excerpt below) (Appendix D, pp. 59, 79, 94).

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	4.00	0.00	0.00	10,400	10,400
Total	4.00	0.00	0.00	10,400	10,400

However, according to the DEIR:

> "[I]t is conservatively assumed that for day-to-day inspection and minor maintenance, some employees would commute to the project site. The annual operations are assumed to be as follows:
>
> - For site inspection and minor repairs, up to 4 one-way worker trips per day would be generated.
> - Routine maintenance activities would include panel washing, which is expected to occur four times annually over a total of 20 days. Panel washing activities are estimated to require additional daily trips of 4 work 6 haul trucks for transport of water during each event" (p. 3.10-8).

F.78

By including only 4 one-way trips per day for site inspection and minor repairs, the Project's CalEEMod model fails to account for the trips associated with routine maintenance activities, which would generate an additional 4 worker and 6 hauling trips. Thus, in order to be consistent with the information provided in the DEIR and conduct the most conservative analysis as required by CEQA, the model should have included 14 daily one-way trips.[25] Failing to account for the correct number of daily operational trips presents an issue, as operational vehicle trips are used by CalEEMod to calculate the emissions

[23] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[24] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 37
[25] Calculated: (4 worker trips for site inspection and minor repairs) + (4 worker trips for routine maintenance activities) + (6 hauling trips for routine maintenance activities) = 14 average daily trips

associated with operational on-road vehicles.[26] As a result, the model may underestimate the Project's operational emissions and should not be relied upon to determine Project significance.

Unsubstantiated Changes to Operational Vehicle Trip Lengths

Review of the Project's CalEEMod output files demonstrates that the model included changes to the Project's anticipated operational vehicle trip lengths (see excerpt below) (Appendix D, pp. 52, 71, 86).

Table Name	Column Name	Default Value	New Value
tblVehicleTrips	CC_TL	9.50	10.00
tblVehicleTrips	CNW_TL	11.90	10.00
tblVehicleTrips	CW_TL	16.40	10.00
tblVehicleTrips	HO_TL	0.00	10.00
tblVehicleTrips	HS_TL	0.00	10.00
tblVehicleTrips	HW_TL	0.00	10.00

As you can see in the excerpt above, the model changed the Project's anticipated operational trip lengths from the default CalEEMod value to 10 miles. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[27] Here, however, the "User Entered Comments & Non-Default Data" table fails to mention or provide a justification for these changes (Appendix D, pp. 51, 70, 85). Furthermore, the DEIR and associated documents fail to justify or mention these changes, and as a result, we cannot verify the revised operational trip lengths. These unsubstantiated changes present an issue, as operational vehicle trip lengths are used by CalEEMod to calculate the emissions associated with operational on-road vehicles.[28] As a result, the Project's operational emissions may be underestimated, and the model should not be relied upon to determine Project significance.

F.78, cont.

Unsubstantiated Changes to Operational Vehicle Trip Purpose Percentages

Review of the Project's CalEEMod output files demonstrates that the model included a change to the Residential Home-to-Work Trip Purpose Percentage from 0% to 100% (Appendix D, pp. 52, 71, 86).

Table Name	Column Name	Default Value	New Value
tblVehicleTrips	HW_TTP	0.00	100.00

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[29] Here, however, the "User Entered Comments & Non-Default Data" table fails to mention or provide a justification for this change (Appendix D, pp. 51, 70, 85). Furthermore, the DEIR and associated documents fail to justify or mention this change, and as a result, we cannot verify the revised Residential Home-to-Work Trip Purpose Percentage. This unsubstantiated change presents an issue, as operational vehicle trip purpose percentages are used by CalEEMod to calculate the emissions associated with

[26] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 35
[27] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[28] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 35
[29] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

operational on-road vehicles.[30] As a result, the Project's operational emissions may be underestimated, and the model should not be relied upon to determine Project significance.

Unsubstantiated Changes to Hauling, Vendor, and Worker Trip Percent Paved Values

Review of the Project's CalEEMod output files demonstrates that the model included changes to the Project's construction and operational paved roads percentages.

The CalEEMod output files reveal that the model increased the Project's *construction* hauling, vendor, and worker trips from 50% on paved roads to 98% on paved roads (see excerpt below) (Appendix D, pp. 100-101, 115-116, 130-131).

Table Name	Column Name	Default Value	New Value
tblOnRoadDust	HaulingPercentPave	50.00	98.00
tblOnRoadDust	HaulingPercentPave	50.00	98.00
tblOnRoadDust	HaulingPercentPave	50.00	98.00
tblOnRoadDust	VendorPercentPave	50.00	98.00
tblOnRoadDust	VendorPercentPave	50.00	98.00
tblOnRoadDust	VendorPercentPave	50.00	98.00
tblOnRoadDust	WorkerPercentPave	50.00	98.00
tblOnRoadDust	WorkerPercentPave	50.00	98.00
tblOnRoadDust	WorkerPercentPave	50.00	98.00

F.78, cont.

In addition, the CalEEMod output files reveal that the model increased the Project's *operational* hauling, vendor, and worker trips from 50% on paved roads to 98% on paved roads (see excerpt below) (Appendix D, pp. 52, 71, 86).

Table Name	Column Name	Default Value	New Value
tblOnRoadDust	HaulingPercentPave	50.00	98.00
tblOnRoadDust	VendorPercentPave	50.00	98.00
tblOnRoadDust	WorkerPercentPave	50.00	98.00

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[31] According to the "User Entered Comments & Non-Default Data" table, the justification provided for these changes is: "Project site is accessible through paved roads" (Appendix D, pp. 51, 70, 85, 99, 114, 129). However, simply because the Project site would be accessible via paved roads does not justify the increase to the Project's anticipated construction- and operational-related road percent paved value. Furthermore, the DEIR discusses 6 roadways "that would be utilized for access to the project site during construction, and subsequent operation (e.g. maintenance) activities," 2 of which are unpaved or dirt service roads (p. 3.10-2). Thus, the increase in percentage of paved roads to 98% is incorrect. This presents an issue as CalEEMod uses the percentage of paved roads to determine the

[30] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 35
[31] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

fugitive dust emissions from on-road vehicles.[32] As a result, the Project's construction-related and operational emissions may be underestimated, and the model should not be relied upon to determine Project significance.

Incorrect Application of Construction-Related Mitigation Measures

Review of the Project's CalEEMod output files demonstrates that the model includes construction-related mitigation measures without sufficient justification. As a result, the Project's construction-related emissions may be underestimated.

F.78, cont.

The CalEEMod output files reveal that the model includes the following construction-related mitigation measures: "Water Exposed Area" and "Reduce Vehicle Speed on Unpaved Roads" (see excerpt below) (Appendix D, 106, 121, 136).

3.1 Mitigation Measures Construction

Water Exposed Area
Reduce Vehicle Speed on Unpaved Roads

Furthermore, the unpaved road vehicle speed was changed to 15 miles per hour ("MPH") as a result of the "Reduce Vehicle Speed on Unpaved Roads" and the unpaved road moisture content was changed to 0.5% as a result of the "Water Exposed Area" mitigation measures (see excerpt below) (Appendix D, pp. 99, 115, 130).

F.79

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[33] According to the "User Entered Comments & Non-Default Data" table, the justification provided for these changes is: "Water 2 times per day" (Appendix D, pp. 99, 114, 129). However, this fails to justify a vehicle speed of 15 miles per hour and an unpaved road moisture content of 0.5%. Furthermore, according to the Imperial County Air Pollution Control District's ("ICAPCD") CEQA Handbook, as referenced by the DEIR, the following mitigation measures are only *recommended*: "water exposed soil with adequate frequency for continued moist soil" and "vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site"[34] (p. 3.3-18). However, simply because these measures are *recommended* by the ICAPCD does not demonstrate that the proposed Project has *committed* to their implementation on the Project site. As a result, we cannot

[32] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 35
[33] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[34] ICAPCD's CEQA Handbook, available at: https://apcd.imperialcounty.org/wp-content/uploads/2020/01/CEQAHandbk.pdf, p. 24

verify the inclusion of these measures, and the model may underestimate the Project's construction-related emissions. F.79, cont.

Failure to Evaluate Emissions from Decommissioning

According to the DEIR, the Project would have a 20-year lifespan (p. 3.7-13). Therefore, 20 years after operation of the Project commences, the solar panels and associated structures will need to be removed, impacted soils will need to be restored, and debris will need to be hauled off-site. As a result, the DEIR should have evaluated the potential emissions associated with the decommissioning of the Project and compared those emissions to applicable thresholds.

However, the DEIR fails to consider the proposed Project's emissions from decommissioning. According to the DEIR:

> "The emissions associated with decommissioning of the Project are not quantitatively estimated, as the extent of activities and emissions factors for equipment and vehicles at the time of decommissioning are unknown. The overall activity would be anticipated to be somewhat less than project construction, and the emissions from offroad and on-road equipment are expected to be much lower than those for the Project construction. However, without changes in fugitive dust control methods it is likely that fugitive dust emissions would be closer to those estimated for construction. Overall, similar to construction, emissions associated with decommissioning would be less than significant." (p. 53).

As such, the DEIR fails to quantify emissions associated with these activities and compare them to applicable thresholds prior to Project approval. Until an adequate analysis is conducted that quantifies these impacts, the emissions generated by decommissioning activities remain unknown. As such, there is a large gap in the DEIR's analysis of the Project's impacts on regional air quality, and the Project should not be approved until an updated EIR is prepared to evaluate the emissions associated with decommissioning activities. F.80

Failure to Evaluate Emissions from Fiberoptic Cable and Gen-tie Line

According to the DEIR, the Project proposes the installation of a fiberoptic cable and gen-tie line, along with the solar PV modules and substation facility (p. 2-1). However, the DEIR fails to quantify emissions resulting from construction and operation of the fiberoptic cable and gen-tie line. Specifically, regarding the air quality emission associated with these components of the Project, the DEIR states:

> "The installation of the fiberoptic cable would require substantially less construction equipment and shorter duration compared to the construction of the solar energy facility and gen-tie line. Based on this consideration, the installation of the fiberoptic cable would result in GHG emissions below allowable thresholds. This is considered a less than significant impact" (p. 3.7-15).

As such, the DEIR fails to quantify emissions related to the fiberoptic cable and gen-tie line and compare them to applicable thresholds prior to Project approval. Until an adequate analysis is conducted that quantifies these impacts, the emissions generated by the fiberoptic cable and gen-tie line remain unknown. As such, there is a large gap in the DEIR's analysis of the Project's impacts on regional air

quality, and the Project should not be approved until an updated EIR is prepared to evaluate the emissions associated with the installation of the fiberoptic cable and gen-tie line.

F.80, cont.

Updated Analysis Indicates Significant Pollutant Emissions

In an effort to accurately determine the proposed Project's construction and operational emissions, we prepared an updated CalEEMod model that includes more site-specific information and correct input parameters, as provided by the DEIR. In our updated model for the Project's construction, we omitted the unsubstantiated construction-related mitigation measures and changes to the Project's anticipated hauling, vendor, and worker trip percent paved values. When correct, site-specific input parameters are used to model emissions, we find that the Project's construction-related PM_{10} emissions increase when compared to the DEIR's model and exceed the 150 pounds per day ("lbs/day") threshold set by the ICAPCD, as referenced by the DEIR (see tables below) (p. 3.3-13, Table 3.3-7).

Maximum Daily Construction Emissions (Winter) (lbs/day):

Model	PM10
DEIR	17.6999
SWAPE	639.7735
% Increase	3515%
ICAPCD Regional Threshold (lbs/day)	**150**
Threshold Exceeded?	***Yes***

When correct input parameters are used to model the Project's emissions, construction-related PM_{10} emissions increase by approximately 3,515%, and exceed the ICAPCD threshold of 150 lbs/day. Our updated model demonstrates that when the Project's emissions are estimated correctly, the Project would result in a potentially significant air quality impact that was not previously identified or addressed in the DEIR. A revised EIR should be prepared and recirculated to include an updated air pollution model to adequately estimate the Project's construction and operational emissions, disclose the severity of the Project's individual and cumulative criteria pollutant impacts, and incorporate mitigation to reduce these emissions to a less than significant level.[35]

F.81

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The DEIR concludes that the proposed Project's health risk impact would be less than significant without conducting a quantified construction or operational health risk assessment ("HRA") (p. 3.3-20). Specifically, the DEIR states:

> "As there would be minimal and temporary emissions of DPM during project construction, and the nearest sensitive receptor is approximately 2,000 feet southwest of the project site, implementation of the project would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant" (DEIR, p. 3.3-20).

[35] See section titled "Feasible Mitigation Measures Available to Reduce Emissions" on p. 15 of this comment letter. These measures would effectively reduce construction-related PM_{10} emissions.

However, these justifications and subsequent less than significant impact finding are incorrect for several reasons.

First, review of Google Maps demonstrates that the nearest sensitive receptors are residences located approximately 395 meters, or 1,297 feet, west of the Project site (see excerpt below).

As you can see in the excerpt above, there are residential receptors approximately 395 meters west of the Project site. As such, the DEIR's claim that "the nearest sensitive receptor is approximately 2,000 feet southwest of the project site" is incorrect (p. 3.3-20). As a result, the DEIR's evaluation of the Project's health risk impacts, as well as the subsequent less than significant impact conclusion, is incorrect and should not be relied upon to determine Project significance.

Second, the DEIR's claim that "the project would not expose sensitive receptors to substantial pollutant concentrations" is unsupported. The omission of a quantified HRA is inconsistent with the most recent guidance published by the Office of Environmental Health Hazard Assessment ("OEHHA"), the organization responsible for providing guidance on conducting HRAs in California. In February of 2015, OEHHA released its most recent *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments.*[36] This guidance document describes the types of projects that warrant the preparation of an HRA. Construction of the Project will produce emissions of DPM, a human carcinogen, through the exhaust stacks of construction equipment over a construction period of approximately 221

F.81, cont.

[36] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/hotspots2015.html

days (Appendix D, pp. 104, 119, 134). The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.[37] Therefore, per OEHHA guidelines, we recommend that health risk impacts from Project construction be evaluated by an updated EIR. Furthermore, once construction of the Project is complete, the Project will operate for a long period of time. Project operation will generate a net increase of approximately 4 daily vehicle trips, as well as an additional 4 worker trips and 6 haul truck trips during panel washing, which will generate additional exhaust emissions and continue to expose nearby sensitive receptors to DPM emissions (p. 3.10-8). The OEHHA document recommends that exposure from projects lasting more than 6 months be evaluated for the duration of the project, and recommends that an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident ("MEIR").[38] According to the DEIR, the Project would have an approximately 20-year lifespan (p. 3.7-13). Therefore, we recommend that health risk impacts from Project operation also be evaluated in an updated EIR, as a 20-year exposure duration vastly exceeds the 2-month and 6-month requirements set forth by OEHHA. These recommendations reflect the most recent health risk policy, as adopted by the air district, and as such, an updated assessment of health risks to nearby sensitive receptors from Project construction and operation should be included in an updated EIR for the Project.

F.81, cont.

Third, by claiming a less than significant impact without conducting a quantified construction or operational HRA for nearby, existing sensitive receptors, the DEIR fails to compare the excess health risk impact to the ICAPCD's specific numeric threshold of 10 in one million.[39] Thus, the DEIR cannot conclude less than significant health risk impacts resulting from Project construction without quantifying emissions to compare to the proper threshold.

Greenhouse Gas

Failure to Adequately Evaluate Greenhouse Gas Impacts

The DEIR concludes that the proposed Project would result in a less than significant GHG impact based on the Project's renewable energy generation, which would offset any GHG emissions associated with the proposed Project (p. 3.7-13). Furthermore, the DEIR concludes that the proposed Project would result in a less than significant GHG impact as a result of the Project's consistency with CARB's 2008 AB 32 *Scoping Plan* (p. 3.7-14). Specifically, according to the DEIR:

F.82

> "The proposed project is consistent with the *AB 32 Scoping Plan* strategies to increase the total amount of renewable energy sources consistent with the *State's* RPS requirements. The project would help the state meet this goal by generating up to 20 MW of power to California's current renewable portfolio. In addition, the *project would not conflict with CARB's emission reduction strategies in the Scoping Plan*. As the project would not exceed applicable GHG screening

[37] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-18
[38] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-6, 8-15
[39] "Section 4.1 Air Quality/Greenhouse Gas Emissions." ICAPCD, October 2016, *available at:* http://www.icpds.com/CMS/Media/4.1-Air-Quality-Greenhouse-Gases.pdf, p. 4.1-12.

thresholds and would provide a GHG emissions benefit, the project would be consistent with the Scoping Plan's goal of achieving cost-effective emissions reductions while accelerating the transition to a low-carbon economy.

Neither the County of Imperial or ICAPCD have any specific plans, policies, nor regulations adopted for reducing the emissions of GHGs; however, since the long-term operational GHG emissions are minimal and the construction emissions are short-term, the project would not conflict with any applicable plan, policy, or regulation adopted for reducing the emissions of GHGs. Implementation of the proposed project would result in a less than significant impact associated with the potential to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHG" (emphasis added) (p. 3.7-14).

However, the DEIR's GHG analysis and subsequent less-than-significant impact conclusion is unsupported, as the DEIR's reliance on CARB's 2008 AB 32 Scoping Plan is incorrect for two reasons. F.82, cont.

First, according to the *Scoping Plan*:

> "As the lead agency for implementing AB 32, the California Air Resources Board (ARB or the Board) released a Draft Scoping Plan on June 26, 2008, which laid out a comprehensive statewide plan to reduce California's greenhouse gas emissions to 1990 levels by 2020."[40]

As demonstrated above, this plan implements AB 32 and thus, only contains emission reduction goals through 2020. Given that it is already August of 2020, and the Project has not yet been approved, this plan is outdated and does not apply to the proposed Project.

Second, the DEIR states that the Project "would not conflict with CARB's emission reduction strategies in the Scoping Plan" (p. 3.7-14). However, simply not conflicting with CARB's implementation of this Plan does not mean that the Project would comply or participate in the measures included.

Thus, we cannot verify that the proposed Project will result in a less than significant GHG impact, as claimed in the DEIR. As a result, we recommend that an updated EIR be prepared, including further information and analysis utilizing an adequate GHG reduction plan.

Feasible Mitigation Measures Available to Reduce Emissions

As discussed above, the Project's air quality, health risk, and GHG emissions may result in potentially significant impacts. In an effort to reduce the Project's emissions, we identified several mitigation measures that are applicable to the proposed Project from NEDC's *Diesel Emission Controls in* F.83

[40] "Climate Change Scoping Plan: A Framework for Change Pursuant to AB 32 The California Global Warming Solutions Act of 2006." California Air Resources Board (CARB), December 2008, *available at:* https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/document/adopted_scoping_plan.pdf, p. 1.

Construction Projects.[41] Therefore, to reduce the Project's emissions, consideration of the following measures should be made:

NEDC's *Diesel Emission Controls in Construction Projects*[42]
Measures – Diesel Emission Control Technology
a. Diesel Onroad Vehicles All diesel nonroad vehicles on site for more than 10 total days must have either (1) engines that meet EPA onroad emissions standards or (2) emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%.
b. Diesel Generators All diesel generators on site for more than 10 total days must be equipped with emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%.
c. Diesel Nonroad Construction Equipment i. All nonroad diesel engines on site must be Tier 2 or higher. Tier 0 and Tier 1 engines are not allowed on site ii. All diesel nonroad construction equipment on site for more than 10 total days must have either (1) engines meeting EPA Tier 4 nonroad emission standards or (2) emission control technology verified by EPA or CARB for use with nonroad engines to reduce PM emissions by a minimum of 85% for engines 50hp and greater and by a minimum of 20% for engines less than 50hp.
d. Upon confirming that the diesel vehicle, construction equipment, or generator has either an engine meeting Tier 4 non road emission standards or emission control technology, as specified above, installed and functioning, the developer will issue a compliance sticker. All diesel vehicles, construction equipment, and generators on site shall display the compliance sticker in a visible, external location as designated by the developer.
e. Emission control technology shall be operated, maintained, and serviced as recommended by the emission control technology manufacturer.
f. All diesel vehicles, construction equipment, and generators on site shall be fueled with ultra-low sulfur diesel fuel (ULSD) or a biodiesel blend[43] approved by the original engine manufacturer with sulfur content of 15 ppm or less.
Measures – Idling Requirements
During periods of inactivity, idling of diesel onroad vehicles and nonroad equipment shall be minimized and shall not exceed the time allowed under state and local laws.
Measures – Additional Diesel Requirements

F.83, cont.

[41] "Diesel Emission Controls in Construction Projects." Northeast Diesel Collaborative (NEDC), December 2010, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.
[42] "Diesel Emission Controls in Construction Projects." Northeast Diesel Collaborative (NEDC), December 2010, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.
[43] Biodiesel blends are only to be used in conjunction with the technologies which have been verified for use with biodiesel blends and are subject to the following requirements: http://www.arb.ca.gov/diesel/verdev/reg/biodieselcompliance.pdf.

a. Construction shall not proceed until the contractor submits a certified list of all diesel vehicles, construction equipment, and generators to be used on site. The list shall include the following: i. Contractor and subcontractor name and address, plus contact person responsible for the vehicles or equipment. ii. Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel usage and hours of operation. iii. For the emission control technology installed: technology type, serial number, make, model, manufacturer, EPA/CARB verification number/level, and installation date and hour-meter reading on installation date.
b. If the contractor subsequently needs to bring on site equipment not on the list, the contractor shall submit written notification within 24 hours that attests the equipment complies with all contract conditions and provide information.
c. All diesel equipment shall comply with all pertinent local, state, and federal regulations relative to exhaust emission controls and safety.
d. The contractor shall establish generator sites and truck-staging zones for vehicles waiting to load or unload material on site. Such zones shall be located where diesel emissions have the least impact on abutters, the general public, and especially sensitive receptors such as hospitals, schools, daycare facilities, elderly housing, and convalescent facilities.
Reporting
a. For each onroad diesel vehicle, nonroad construction equipment, or generator, the contractor shall submit to the developer's representative a report prior to bringing said equipment on site that includes: i. Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, and engine serial number. ii. The type of emission control technology installed, serial number, make, model, manufacturer, and EPA/CARB verification number/level. iii. The Certification Statement signed and printed on the contractor's letterhead.
b. The contractor shall submit to the developer's representative a monthly report that, for each onroad diesel vehicle, nonroad construction equipment, or generator onsite, includes: i. Hour-meter readings on arrival on-site, the first and last day of every month, and on off-site date. ii. Any problems with the equipment or emission controls. iii. Certified copies of fuel deliveries for the time period that identify: 1. Source of supply 2. Quantity of fuel 3. Quality of fuel, including sulfur content (percent by weight)

F.83, cont.

Furthermore, in an effort to reduce the Project's emissions, we identified several mitigation measures that are applicable to the proposed Project from the Sacramento Metropolitan Air Quality Management District's ("SMAQMD") *Basic Construction Emission Control Practices (Best Management Practices)* and

Enhanced Exhaust Control Practices.[44, 45] Therefore, to reduce the Project's emissions, consideration of the following measures should be made:

SMAQMD's *Basic Construction Emission Control Practices*[46]
The following Basic Construction Emissions Control Practices are considered feasible for controlling fugitive dust from a construction site. The practices also serve as best management practices (BMPs), allowing the use of the non-zero particulate matter significance thresholds. Lead agencies should add these emission control practices as Conditions of Approval (COA) or include in a Mitigation Monitoring and Reporting Program (MMRP).
Control of fugitive dust is required by District Rule 403 and enforced by District staff.
Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
The following practices describe exhaust emission control from diesel powered fleets working at a construction site. California regulations limit idling from both on-road and offroad diesel-powered equipment. The California Air Resources Board (CARB) enforces idling limitations and compliance with diesel fleet regulations.
Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1].
Although not required by local or state regulation, many construction companies have equipment inspection and maintenance programs to ensure work and fuel efficiencies

F.83, cont.

[44] "Basic Construction Emission Control Practices (Best Management Practices)." Sacramento Metropolitan Air Quality Management District (SMAQMD), July 2019, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.
[45] "Enhanced Exhaust Control Practices." Sacramento Metropolitan Air Quality Management District (SMAQMD)October 2013, *available at:* http://www.airquality.org/LandUseTransportation/Documents/Ch3EnhancedExhaustControlFINAL10-2013.pdf.
[46] "Basic Construction Emission Control Practices (Best Management Practices)." Sacramento Metropolitan Air Quality Management District (SMAQMD), July 2019, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.

Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.
SMAQMD's *Enhanced Exhaust Control Practices*[47]
1. The project representative shall submit to the lead agency and District a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. • The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. • The project representative shall provide the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. • This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment. • The District's Equipment List Form can be used to submit this information. • The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.
2. The project representative shall provide a plan for approval by the lead agency and District demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOX reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. • This plan shall be submitted in conjunction with the equipment inventory. • Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. • The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.
3. The project representative shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. • Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. • Non-compliant equipment will be documented and a summary provided to the lead agency and District monthly. • A visual survey of all in-operation equipment shall be made at least weekly. • A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period

F.83, cont.

[47] "Enhanced Exhaust Control Practices." Sacramento Metropolitan Air Quality Management District (SMAQMD)October 2013, *available at:* http://www.airquality.org/LandUseTransportation/Documents/Ch3EnhancedExhaustControlFINAL10-2013.pdf.

	in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.
4.	The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation shall supersede other District, state or federal rules or regulations.

These measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduce emissions released during Project construction and operation. An updated EIR should be prepared to include all feasible mitigation measures, as well as include an updated air quality and GHG analysis to ensure that the necessary mitigation measures are implemented to reduce emissions to below thresholds. The EIR should also demonstrate a commitment to the implementation of these measures prior to Project approval, to ensure that the Project's significant emissions are reduced to the maximum extent possible.

F.83, cont.

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

M Hagemann

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Investigation and Remediation Strategies
Litigation Support and Testifying Expert
Industrial Stormwater Compliance
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 30 years of experience in environmental policy, contaminant assessment and remediation, stormwater compliance, and CEQA review. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) and directed efforts to improve hydrogeologic characterization and water quality monitoring. For the past 15 years, as a founding partner with SWAPE, Matt has developed extensive client relationships and has managed complex projects that include consultation as an expert witness and a regulatory specialist, and a manager of projects ranging from industrial stormwater compliance to CEQA review of impacts from hazardous waste, air quality and greenhouse gas emissions.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2104, 2017;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 300 environmental impact reports and negative declarations since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at more than 100 industrial facilities.
- Expert witness on numerous cases including, for example, MTBE litigation, air toxins at hazards at a school, CERCLA compliance in assessment and remediation, and industrial stormwater contamination.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.
- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted

public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9.

Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific

principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt is currently a part time geology instructor at Golden West College in Huntington Beach, California where he taught from 2010 to 2014 and in 2017.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F.** 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examinations, 2009-2011.

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on VOC filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld is the Co-Founder and Principal Environmental Chemist at Soil Water Air Protection Enterprise (SWAPE). His focus is the fate and transport of environmental contaminants, risk assessment, and ecological restoration. His project experience ranges from monitoring and modeling of pollution sources as they relate to human and ecological health. Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing, petroleum, MtBE and fuel oxygenates, chlorinated solvents, pesticides, radioactive waste, PCBs, PAHs, dioxins, furans, volatile organics, semi-volatile organics, perchlorate, heavy metals, asbestos, PFOA, unusual polymers, and odor. Significant projects performed by Dr. Rosenfeld include the following:

Litigation Support

Client: Missouri Department of Natural Resources (Jefferson City, Missouri)
Serving as an expert in evaluating air pollution and odor emissions from a Republic Landfill in St. Louis, Missouri. Conducted. Project manager overseeing daily, weekly and comprehensive sampling of odor and chemicals.

Client: Louisiana Department of Transportation and Development (Baton Rouge, Louisiana)
Serving as an expert witness, conducting groundwater modeling of an ethylene dichloride DNAPL and soluble plume resulting from spill caused by Conoco Phillips.

Client: Missouri Department of Natural Resources (St. Louis, Missouri)
Serving as a consulting expert and potential testifying expert regarding a landfill fire directly adjacent to another landfill containing radioactive waste. Implemented an air monitoring program testing for over 100 different compounds using approximately 12 different analytical methods.

Client: Baron & Budd, P.C. (Dallas, Texas) and Weitz & Luxeinberg (New York, New York)
Served as a consulting expert in MTBE Federal Multi District Litigation (MDL) in New York. Consolidated ground water data, created maps for test cases, constructed damage model, evaluated taste and odor threshold levels. Resulted in a settlement of over $440 million.

Client: The Buzbee Law Firm (Houston, Texas)
Served as a as an expert in ongoing litigation involving over 50,000+ plaintiffs who are seeking compensation for chemical exposure and reduction in property value resulting from chemicals released from the BP facility.

Client: Environmental Litigation Group (Birmingham, Alabama)
Serving as an expert on property damage, medical monitoring and toxic tort claims that have been filed on behalf of over 13,000 plaintiffs who were exposed to PCBs and dioxins/furans resulting from emissions from Monsanto and Cerro Copper's operations in Sauget, Illinois. Developed AERMOD models to demonstrate plaintiff's exposure.

Client: Baron & Budd P.C. (Dallas Texas) and Korein Tillery (St. Louis, Missouri)
Served as a consulting expert for a Class Action defective product claim filed in Madison County, Illinois against Syngenta and five other manufacturers for atrazine. Evaluated health issues associated with atrazine and deterimied treatment cost for filtration of public drinking water supplies. Resulted in $105 million dollar settlement.

Client: The Buzbee Law Firm (Houston, Texas)
Served as a consulting expert in catalyst release and refinery emissions cases against the BP Refinery in Texas City. A jury verdict for 10 employees exposed to catalyst via BP's irresponsible behavior.

Client: Baron & Budd, P.C. (Dallas, Texas)
Served as a consulting expert to calculate the Maximum Allowable Dose Level (MADL) and No Significant Risk Level (NSRL), based on Cal EPA and OEHHA guidelines, for Polychlorinated Biphenyls (PCBs) in fish oil dietary supplements.

Client: Girardi Keese (Los Angeles, California)
Served as an expert testifying on hydrocarbon exposure of a woman who worked on a fuel barge operated by Chevron. Demonstrated that the plaintiff was exposed to excessive amounts of benzene.

Client: Mason & Cawood (Annapolis, Maryland) and Girardi & Keese (Los Angeles, California)
Serving as an expert consultant on the Battlefield Golf Club fly ash disposal site in Chesapeake, VA, where arsenic, other metals and radionuclides are leaching into groundwater, and ash is blowing off-site onto the surrounding communities.

Client: California Earth Mineral Corporation (Culver City, California)
Evaluating the montmorillonite clay deposit located near El Centro, California. Working as a Defense Expert representing an individual who owns a 2,500 acre parcel that will potentially be seized by the United States Navy via eminent domain.

Client: Matthews & Associates (Houston, Texas)
Serving as an expert witness, preparing air model demonstrating residential exposure via emissions from fracking in natural gas wells in Duncan, Texas.

Client: Baron & Budd P.C. (Dallas, Texas) and Korein Tillery (St. Louis, Missouri)
Served as a consulting expert for analysis of private wells relating to litigation regarding compensation of private well owners for MTBE testing. Coordinated data acquisition and GIS analysis evaluating private well proximity to leaking underground storage tanks.

Client: Lurie & Park LLP (Los Angeles, California)
Served as an expert witness evaluating a vapor intrusion toxic tort case that resulted in a settlement. The Superfund site is a 4 ½ mile groundwater plume of chlorinated solvents in Whittier, California.

Client: Mason & Cawood (Annapolis, Maryland)
Evaluated data from the Hess Gasoline Station in northern Baltimore, Maryland that had a release resulting in flooding of plaintiff's homes with gasoline-contaminated water, foul odor, and biofilm growth.

Client: The Buzbee Law Firm (Houston, Texas)
Evaluated air quality resulting from grain processing emissions in Muscatine, Iowa.

Client: Anderson Kill & Olick, P.C. (Ventura, California)
Evaluated historical exposure and lateral and vertical extent of contamination resulting from a ~150 million gallon Exxon Mobil tank farm located near Watts, California.

Client: Packard Law Firm (Petaluma, California)
Served as an expert witness, evaluated lead in Proposition 65 Case where various products were found to have elevated lead levels.

Client: The Buzbee Law Firm (Houston, Texas)
Evaluated data resulting from an oil spill in Port Arthur, Texas.

Client: Nexsen Pruet, LLC (Charleston, South Carolina)
Serving as expert in chlorine exposure in a railroad tank car accident where approximately 120,000 pounds of chlorine were released.

Client: Girardi & Keese (Los Angeles, California)
Serving as an expert investigating hydrocarbon exposure and property damage for ~600 individuals and ~280 properties in Carson, California where homes were constructed above a large tank farm formerly owned by Shell.

Client: Brent Coon Law Firm (Cleveland, Ohio)
Served as an expert, calculating an environmental exposure to benzene, PAHs, and VOCs from a Chevron Refinery in Hooven, Ohio. Conducted AERMOD modeling to determine cumulative dose.

Client: Lundy Davis (Lake Charles, Louisiana)
Served as consulting expert on an oil field case representing the lease holder of a contaminated oil field. Conducted field work evaluating oil field contamination in Sulphur, Louisiana. Property is owned by Conoco Phillips, but leased by Yellow Rock, a small oil firm.

Client: Cox Cox Filo (Lake Charles, Louisiana)
Served as testifying expert on a multimillion gallon oil spill in Lake Charles which occurred on June 19, 2006, resulting in hydrocarbon vapor exposure to hundreds of workers and residents. Prepared air model and calculated exposure concentration. Demonstrated that petroleum odor alone can result in significant health harms.

Client: Cotchett Pitre & McCarthy (San Francisco, California)
Served as testifying expert representing homeowners who unknowingly purchased homes built on an old oil field in Santa Maria, California. Properties have high concentrations of petroleum hydrocarbons in subsurface soils resulting in diminished property value.

Client: Law Offices Of Anthony Liberatore P.C. (Los Angeles, California)
Served as testifying expert representing individuals who rented homes on the Inglewood Oil Field in California. Plaintiffs were exposed to hydrocarbon contaminated water and air, and experienced health harms associated with the petroleum exposure.

Client: Orange County District Attorney (Orange County, California)
Coordinated a review of 143 ARCO gas stations in Orange County to assist the District Attorney's prosecution of CCR Title 23 and California Health and Safety Code violators.

Client: Environmental Litigation Group (Birmingham, Alabama)
Served as a testifying expert in a health effects case against ABC Coke/Drummond Company for polluting a community with PAHs, benzene, particulate matter, heavy metals, and coke oven emissions. Created air dispersion models and conducted attic dust sampling, exposure modeling, and risk assessment for plaintiffs.

Client: Masry & Vitatoe (Westlake Village, California), Engstrom Lipscomb Lack (Los Angeles, Califronia) and Baron & Budd P.C. (Dallas, Texas)
Served as a consulting expert in Proposition 65 lawsuit filed against major oil companies for benzene and toluene releases from gas stations and refineries resulting in contaminated groundwater. Settlement included over $110 million dollars in injunctive relief.

Client: Tommy Franks Law Firm (Austin, Texas)
Served as expert evaluating groundwater contamination which resulted from the hazardous waste injection program and negligent actions of Morton Thiokol and Rohm Hass. Evaluated drinking water contamination and community exposure.

Client: Baron & Budd P.C. (Dallas, Texas) and Sher Leff (San Francisco, California)
Served as consulting expert for several California cities that filed defective product cases against Dow Chemical and Shell for 1,2,3-trichloropropane groundwater contamination. Generated maps showing capture zones of impacted wells for various municipalities.

Client: Weitz & Luxenberg (New York, New York)
Served as expert on Property Damage and Nuisance claims resulting from emissions from the Countywide Landfill in Ohio. The landfill had an exothermic reaction or fire resulting from aluminum dross dumping, and the EPA fined the landfill $10,000,000 dollars.

Client: Baron & Budd P.C. (Dallas, Texas)
Served as a consulting expert for a groundwater contamination case in Pensacola, Florida where fluorinated compounds contaminated wells operated by Escambia County.

Client: Environmental Litigation Group (Birmingham, Alabama)
Served as an expert on groundwater case where Exxon Mobil and Helena Chemical released ethylene dichloride into groundwater resulting in a large plume. Prepared report on the appropriate treatment technology and cost, and flaws with the proposed on-site remediation.

Client: Environmental Litigation Group (Birmingham, Alabama)
Served as an expert on air emissions released when a Bartlo Packaging Incorporated facility in West Helena, Arkansas exploded resulting in community exposure to pesticides and smoke from combustion of pesticides.

Client: Omara & Padilla (San Diego, California)
Served as a testifying expert on nuisance case against Nutro Dogfood Company that constructed a large dog food processing facility in the middle of a residential community in Victorville, California with no odor control devices. The facility has undergone significant modifications, including installation of a regenerative thermal oxidizer.

Client: Environmental Litigation Group (Birmingham, Alabama)
Serving as an expert on property damage and medical monitoring claims that have been filed against International Paper resulting from chemical emissions from facilities located in Bastrop, Louisiana; Prattville, Alabama; and Georgetown, South Carolina.

Client: Estep and Shafer L.C. (Kingwood, West Virginia)
Served as expert calculating acid emissions doses to residents resulting from coal-fired power plant emissions in West V
irginia using various air models.

Client: Watts Law Firm (Austin, Texas), Woodfill & Pressler (Houston, Texas) and Woska & Associates (Oklahoma City, Oklahoma)
Served as testifying expert on community and worker exposure to CCA, creosote, PAHs, and dioxins/furans from a BNSF and Koppers Facility in Somerville, Texas. Conducted field sampling, risk assessment, dose assessment and air modeling to quantify exposure to workers and community members.

Client: Environmental Litigation Group (Birmingham, Alabama)
Served as expert regarding community exposure to CCA, creosote, PAHs, and dioxins/furans from a Louisiana Pacific wood treatment facility in Florala, Alabama. Conducted blood sampling and environmental sampling to determine environmental exposure to dioxins/furans and PAHs.

Client: Sanders Law Firm (Colorado Springs, Colorado) and Vamvoras & Schwartzberg (Lake Charles, Louisiana)
Served as an expert calculating chemical exposure to over 500 workers from large ethylene dichloride spill in Lake Charles, Louisiana at the Conoco Phillips Refinery.

Client: Baron & Budd P.C. (Dallas, Texas)
Served as consulting expert in a defective product lawsuit against Dow Agroscience focusing on Clopyralid, a recalcitrant herbicide that damaged numerous compost facilities across the United States.

Client: Sullivan Papain Block McGrath & Cannavo (New York, New York) and The Cochran Firm (Dothan, Mississippi)

Served as an expert regarding community exposure to metals, PAHs PCBs, and dioxins/furans from the burning of Ford paint sludge and municipal solid waste in Ringwood, New Jersey.

Client: Rose, Klein & Marias LLP (Los Angeles, California)
Served as an expert in 55 Proposition 65 cases against individual facilities in the Port of Los Angeles and Port of Long Beach. Prepared air dispersion and risk models to demonstrate that each facility emits diesel particulate matter that results in risks exceeding 1/100,000, hence violating the Proposition 65 Statute.

Client: Rose, Klein & Marias LLP (Los Angeles, California) and Environmental Law Foundation (San Francisco, California)
Served as an expert in a Proposition 65 case against potato chip manufacturers. Conducted an analysis of several brands of potato chips for acrylamide concentrations and found that all samples exceeded Proposition 65 No Significant Risk Levels.

Client: Gonzales & Robinson (Westlake Village, California)
Served as a testifying expert in a toxic tort case against Chevron (Ortho) for allowing a community to be contaminated with lead arsenate pesticide. Created air dispersion and soil vadose zone transport models, and evaluated bioaccumulation of lead arsenate in food.

Client: Environment Now (Santa Monica, California)
Served as expert for Environment Now to convince the State of California to file a nuisance claim against automobile manufactures to recover MediCal damages from expenditures on asthma-related health care costs.

Client: Trutanich Michell (Long Beach, California)
Served as expert representing San Pedro Boat Works in the Port of Los Angeles. Prepared air dispersion, particulate air dispersion, and storm water discharge models to demonstrate that Kaiser Bulk Loading is responsible for copper concentrate accumulating in the bay sediment.

Client: Azurix of North America (Fort Myers, Florida)
Provided expert opinions, reports and research pertaining to a proposed County Ordinance requiring biosolids applicators to measure VOC and odor concentrations at application sites' boundaries.

Client: MCP Polyurethane (Pittsburg, Kansas)
Provided expert opinions and reports regarding metal-laden landfill runoff that damaged a running track by causing the reversion of the polyurethane due to its catalytic properties.

Risk Assessment And Air Modeling

Client: Hager, Dewick & Zuengler, S.C. (Green Bay, Wisconsin)
Conducted odor audit of rendering facility in Green Bay, Wisconsin.

Client: ABT-Haskell (San Bernardino, California)
Prepared air dispersion model for a proposed state-of-the-art enclosed compost facility. Prepared a traffic analysis and developed odor detection limits to predict 1, 8, and 24-hour off-site concentrations of sulfur, ammonia, and amine.

Client: Jefferson PRP Group (Los Angeles, California)
Evaluated exposure pathways for chlorinated solvents and hexavalent chromium for human health risk assessment of Los Angeles Academy (formerly Jefferson New Middle School) operated by Los Angeles Unified School District.

Client: Covanta (Susanville, California)
Prepared human health risk assessment for Covanta Energy focusing on agricultural worker exposure to caustic fertilizer.

Client: CIWMB (Sacramento, California)
Used dispersion models to estimate traveling distance and VOC concentrations downwind from a composting facility for the California Integrated Waste Management Board.

Client: Carboquimeca (Bogotá, Columbia)
Evaluated exposure pathways for human health risk assessment for a confidential client focusing on significant concentrations of arsenic and chlorinated solvents present in groundwater used for drinking water.

Client: Navy Base Realignment and Closure Team (Treasure Island, California)
Used Johnson-Ettinger model to estimate indoor air PCB concentrations and compared estimated values with empirical data collected in homes.

Client: San Diego State University (San Diego, California)
Measured CO_2 flux from soils amended with different quantities of biosolids compost at Camp Pendleton to determine CO_2 credit values for coastal sage under fertilized and non-fertilized conditions.

Client: Navy Base Realignment and Closure Team (MCAS Tustin, California)
Evaluated cumulative risk of a multiple pathway scenario for a child resident and a construction worker. Evaluated exposure to air and soil via particulate and vapor inhalation, incidental soil ingestion, and dermal contact with soil.

Client: MCAS Miramar (San Diego, California)
Evaluated exposure pathways of metals in soil by comparing site data to background data. Risk assessment incorporated multiple pathway scenarios assuming child resident and construction worker particulate and vapor inhalation, soil ingestion, and dermal soil contact.

Client: Naval Weapons Station (Seal Beach, California)
Used a multiple pathway model to generate dust emission factors from automobiles driving on dirt roads. Calculated bioaccumulation of metals, PCBs, dioxin congeners and pesticides to estimate human and ecological risk.

Client: King County, Douglas County (Washington State)
Measured PM_{10} and $PM_{2.5}$ emissions from windblown soil treated with biosolids and a polyacrylamide polymer in Douglas County, Washington. Used Pilat Mark V impactor for measurement and compared data to EPA particulate regulations.

Client: King County (Seattle, Washington)
Created emission inventory for several compost and wastewater facilities comparing VOC, particulate, and fungi concentrations to NIOSH values estimating risk to workers and individuals at neighboring facilities.

Air Pollution Investigation and Remediation

Client: Republic Landfill (Santa Clarita, California)
Managed a field investigation of odor around a landfill during 30+ events. Used hedonic tone, butanol scale, dilution-to-threshold values, and odor character to evaluate odor sources and character and intensity.

Client: California Biomass (Victorville, California)
Managed a field investigation of odor around landfill during 9+ events. Used hedonic tone, butanol scale, dilution-to-threshold values, and odor character to evaluate odor sources, character and intensity.

Client: ABT-Haskell (Redlands, California)
Assisted in permitting a compost facility that will be completely enclosed with a complex scrubbing system using acid scrubbers, base scrubbers, biofilters, heat exchangers and chlorine to reduce VOC emissions by 99 percent.

Client: Synagro (Corona, California)
Designed and monitored 30-foot by 20-foot by 6-foot biofilter for VOC control at an industrial composting facility in Corona, California to reduce VOC emissions by 99 percent.

Client: Jeff Gage (Tacoma, Washington)
Conducted emission inventory at industrial compost facility using GC/MS analyses for VOCs. Evaluated effectiveness of VOC and odor control systems and estimated human health risk.

Client: Daishowa America (Port Angeles Mill, Washington)
Analyzed industrial paper sludge and ash for VOCs, heavy metals and nutrients to develop a land application program. Metals were compared to federal guidelines to determine maximum allowable land application rates.

Client: Jeff Gage (Puyallup, Washington)
Measured effectiveness of biofilters at composting facility and conducted EPA dispersion models to estimate traveling distance of odor and human health risk from exposure to volatile organics.

Surface Water, Groundwater, and Wastewater Investigation/Remediation

Client: Confidential (Downey, California)
Managed groundwater investigation to determine horizontal extent of 1,000 foot TCE plume associated with a metal finishing shop.

Client: Confidential (West Hollywood, California)
Designing soil vapor extraction system that is currently being installed for confidential client. Managing groundwater investigation to determine horizontal extent of TCE plume associated with dry cleaning.

Client: Synagro Technologies (Sacramento, California)
Managed groundwater investigation to determine if biosolids application impacted salinity and nutrient concentrations in groundwater.

Client: Navy Base Realignment and Closure Team (Treasure Island, California)
Assisted in the design and remediation of PCB, chlorinated solvent, hydrocarbon and lead contaminated groundwater and soil on Treasure Island. Negotiated screening levels with DTSC and Water Board. Assisted in the preparation of FSP/QAPP, RI/FS, and RAP documents and assisted in CEQA document preparation.

Client: Navy Base Realignment and Closure Team (MCAS Tustin, California)
Assisted in the design of groundwater monitoring systems for chlorinated solvents at Tustin MCAS. Contributed to the preparation of FS for groundwater treatment.

Client: Mission Cleaning Facility (Salinas, California)
Prepared a RAP and cost estimate for using an oxygen releasing compound (ORC) and molasses to oxidize diesel fuel in soil and groundwater at Mission Cleaning in Salinas.

Client: King County (Washington)
Established and monitored experimental plots at a US EPA Superfund Site in wetland and upland mine tailings contaminated with zinc and lead in Smelterville, Idaho. Used organic matter and pH adjustment for wetland remediation and erosion control.

Client: City of Redmond (Richmond, Washington)
Collected storm water from compost-amended and fertilized turf to measure nutrients in urban runoff. Evaluated effectiveness of organic matter-lined detention ponds on reduction of peak flow during storm events. Drafted compost amended landscape installation guidelines to promote storm water detention and nutrient runoff reduction.

Client: City of Seattle (Seattle, Washington)
Measured VOC emissions from Renton wastewater treatment plant in Washington. Ran GC/MS, dispersion models, and sensory panels to characterize, quantify, control and estimate risk from VOCs.

Client: Plumas County (Quincy, California)

Installed wetland to treat contaminated water containing 1% copper in an EPA Superfund site. Revegetated 10 acres of acidic and metal laden sand dunes resulting from hydraulic mining. Installed and monitored piezometers in wetland estimating metal loading.

Client: Adams Egg Farm (St. Kitts, West Indies)
Designed, constructed, and maintained 3 anaerobic digesters at Springfield Egg Farm, St. Kitts. Digesters treated chicken excrement before effluent discharged into sea. Chicken waste was converted into methane cooking gas.

Client: BLM (Kremmling, Colorado)
Collected water samples for monitoring program along upper stretch of the Colorado River. Rafted along river and protected water quality by digging and repairing latrines.

Soil Science and Restoration Projects

Client: Hefner, Stark & Marois, LLP (Sacramento, California)
Facilitated in assisting Hefner, Stark & Marois, LLP in working with the Regional Water Quality board to determine how to utilize Calcium Participate as a by-product of processing sugar beets.

Client: Kinder Morgan (San Diego County, California)
Designed and monitored the restoration of a 110-acre project on Camp Pendleton along a 26-mile pipeline. Managed crew of 20, planting coastal sage, riparian, wetland, native grassland, and marsh ecosystems. Negotiated with the CDFW concerning species planting list and success standards.

Client: NAVY BRAC (Orote Landfill, Guam)
Designed and monitored pilot landfill cap mimicking limestone forest. Measured different species' root-penetration into landfill cap. Plants were used to evapotranspirate water, reducing water leaching through soil profile.

Client: LA Sanitation District Puente Hills Landfill (Whittier, California)
Monitored success of upland and wetland mitigation at Puente Hills Landfill operated by Sanitation Districts of Los Angeles. Negotiated with the Army Corps of Engineers and CDFG to obtain an early sign-off.

Client: City of Escondido (Escondido, California)
Designed, managed, installed, and monitored a 20-acre coastal sage scrub restoration project at Kit Carson Park, Escondido, California.

Client: Home Depot (Encinitas, California)
Designed, managed, installed and monitored a 15-acre coastal sage scrub and wetland restoration project at Home Depot in Encinitas, California.

Client: Alvarado Water Filtration Plant (San Diego, California)
Planned, installed and monitored 2-acre riparian and coastal sage scrub mitigation in San Diego California.

Client: Monsanto and James River Corporation (Clatskanie, Oregon)
Served as a soil scientist on a 50,000-acre hybrid poplar farm. Worked on genetically engineering study of Poplar trees to see if glyphosate resistant poplar clones were economically viable.

Client: World Wildlife Fund (St. Kitts, West Indies)
Managed 2-year biodiversity study, quantifying and qualifying the various flora and fauna in St. Kitts' expanding volcanic rainforest. Collaborated with skilled botanists, ornithologists and herpetologists.

Publications

Chen, J. A., Zapata, A R., Sutherland, A. J., Molmen, D. R,. Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. American Journal of Environmental Science, 2012, 8 (6), 622-632

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste*, Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2011). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences* 4(2011):113-125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.**, (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health* 73(6):34-46.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2010). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries*, Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2009). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Petroleum Industry*, Amsterdam: Elsevier Publishing.

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Chollack, T. and **P. Rosenfeld.** 1998. Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

P. Rosenfeld. 1992. The Mount Liamuiga Crater Trail. Heritage Magazine of St. Kitts, Vol. 3 No. 2.

P. Rosenfeld. 1993. High School Biogas Project to Prevent Deforestation On St. Kitts. Biomass Users Network, Vol. 7, No. 1, 1993.

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P. Rosenfeld. 1998. Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

P. Rosenfeld. 1994. Potential Utilization of Small Diameter Trees On Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

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England Environmental Agency, 2002. Landfill Gas Control Technologies. Publishing Organization Environment Agency, Rio House, Waterside Drive, Aztec West, Almondsbury BRISTOL, BS32 4UD.

Presentations

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** "Atrazine: A Persistent Pesticide in Urban Drinking Water." Urban Environmental Pollution, Boston, MA, June 20-23, 2010.

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Rosenfeld, P.E. (2009) "Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States" Presentation at the 2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting, April 19-23, 2009. Tuscon, AZ.

Rosenfeld, P.E. (2009) "Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States" Presentation at the 2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting, April 19-23, 2009. Tuscon, AZ.

Rosenfeld, P. E. (2007) "Moss Point Community Exposure To Contaminants From A Releasing Facility" Platform Presentation at the 23rd Annual International Conferences on Soils Sediment and Water, October 15-18, 2007. University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (2007) "The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant" Platform Presentation at the 23rd Annual International Conferences on Soils Sediment and Water, October 15-18, 2007. University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (2007) "Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions" Poster Presentation at the 23rd Annual International Conferences on Soils Sediment and Water, October 15-18, 2007. University of Massachusetts, Amherst MA.

Rosenfeld P. E. "Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP)" – Platform Presentation at the Association for Environmental Health and Sciences (AEHS) Annual Meeting, San Diego, CA, 3/2007.

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Paul Rosenfeld Ph.D. "Fate, Transport and Persistence of PFOA and Related Chemicals." Mealey's C8/PFOA Science, Risk & Litigation Conference" October 24, 25. The Rittenhouse Hotel, Philadelphia.

Paul Rosenfeld Ph.D. "Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation PEMA Emerging Contaminant Conference. September 19. Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. "Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP." PEMA Emerging Contaminant Conference. September 19. Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. "Fate, Transport and Persistence of PDBEs." Mealey's Groundwater Conference. September 26, 27. Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. "Fate, Transport and Persistence of PFOA and Related Chemicals." International Society of Environmental Forensics: Focus On Emerging Contaminants. June 7,8. Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. "Rate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals". 2005 National Groundwater Association Ground Water And Environmental Law Conference. July 21-22, 2005. Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. "Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation." 2005 National Groundwater Association Ground Water And Environmental Law Conference. July 21-22, 2005. Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. National Groundwater Association. Environmental Law Conference. May 5-6, 2004. Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D., 2004. Perchlorate Toxicology. Presentation to a meeting of the American Groundwater Trust. March 7th, 2004. Pheonix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse, 2004. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal representatives, Parker, AZ.

Paul Rosenfeld, Ph.D. A National Damage Assessment Model For PCE and Dry Cleaners. Drycleaner Symposium. California Ground Water Association. Radison Hotel, Sacramento, California. April 7, 2004.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants. February 20-21, 2003. Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. Underground Storage Tank Litigation and Remediation. California CUPA Forum. Marriott Hotel. Anaheim California. February 6-7, 2003.

Paul Rosenfeld, Ph.D. Underground Storage Tank Litigation and Remediation. EPA Underground Storage Tank Roundtable. Sacramento California. October 23, 2002.

Rosenfeld, P.E. and Suffet, M. 2002. Understanding Odor from Compost, Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association. Barcelona Spain. October 7- 10.

Rosenfeld, P.E. and Suffet, M. 2002. Using High Carbon Wood Ash to Control Compost Odor. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association. Barcelona Spain. October 7- 10.

Rosenfeld, P.E. and Grey, M. A. 2002. Biocycle Composting For Coastal Sage Restoration. Northwest Biosolids Management Association. Vancouver Washington. September 22-24.

Rosenfeld, P.E. and Grey, M. A. 2002. Soil Science Society Annual Conference. Indianapolis, Maryland. November 11-14.

Rosenfeld. P.E. 2000. Two stage biofilter for biosolids composting odor control. Water Environment Federation. Anaheim California. September 16, 2000.

Rosenfeld. P. E. 2000. Wood ash and biofilter control of compost odor. Biofest. October 16, 2000.Ocean Shores, California.

Rosenfeld, P. E. 2000. Bioremediation Using Organic Soil Amendments. California Resource Recovery Association. Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. 1998. Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. 1999. An evaluation of ash incorporation with biosolids for odor reduction. Soil Science Society of America. Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. 1998. Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. Brown and Caldwell, Seattle Washington.

Rosenfeld, P.E., C.L. Henry. 1998. Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. Biofest Lake Chelan, Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. 1997. Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. Soil Science Society of America, Anaheim California.

Professional History

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Founding And Managing Partner
UCLA School of Public Health; 2007 to 2010; Lecturer (Asst Res)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist
Bureau of Land Management, Kremmling Colorado 1990; Scientist

Teaching Experience

UCLA Department of Environmental Health (Summer 2003 through 2010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focuses on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course In Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5 2002 Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University. Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993.

Cases that Dr. Rosenfeld Provided Deposition or Trial Testimony

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)

In the Court of Common Pleas for the Second Judicial Circuit, State of South Carolina, County of Aiken
David Anderson, et al., *Plaintiffs*, vs. Norfolk Southern Corporation, et al., *Defendants.*
Case Number: 2007-CP-02-1584

In the Circuit Court of Jefferson County Alabama
Jaeanette Moss Anthony, et al., *Plaintiffs*, vs. Drummond Company Inc., et al., *Defendants*
Civil action No. CV 2008-2076

In the Ninth Judicial District Court, Parish of Rapides, State of Louisiana
Roger Price, et al., *Plaintiffs*, vs. Roy O. Martin, L.P., et al., *Defendants.*
Civil Suit Number 224,041 Division G

In the United States District Court, Western District Lafayette Division
Ackle et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants.*
Case Number 2:07CV1052

In the United States District Court for the Southern District of Ohio
Carolyn Baker, et al., *Plaintiffs*, vs. Chevron Oil Company, et al., *Defendants.*
Case Number 1:05 CV 227

In the Fourth Judicial District Court, Parish of Calcasieu, State of Louisiana
Craig Steven Arabie, et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants.*
Case Number 07-2738 G

In the Fourteenth Judicial District Court, Parish of Calcasieu, State of Louisiana
Leon B. Brydels, *Plaintiffs*, vs. Conoco, Inc., et al., *Defendants.*
Case Number 2004-6941 Division A

In the District Court of Tarrant County, Texas, 153rd Judicial District
Linda Faust, *Plaintiff*, vs. Burlington Northern Santa Fe Rail Way Company, Witco Chemical Corporation A/K/A Witco Corporation, Solvents and Chemicals, Inc. and Koppers Industries, Inc., *Defendants.*
Case Number 153-212928-05

In the Superior Court of the State of California in and for the County of San Bernardino
Leroy Allen, et al., *Plaintiffs*, vs. Nutro Products, Inc., a California Corporation and DOES 1 to 100, inclusive, *Defendants.*
John Loney, Plaintiff, vs. James H. Didion, Sr.; Nutro Products, Inc.; DOES 1 through 20, inclusive, *Defendants.*
Case Number VCVVS044671

In the United States District Court for the Middle District of Alabama, Northern Division
James K. Benefield, et al., *Plaintiffs*, vs. International Paper Company, *Defendant.*
Civil Action Number 2:09-cv-232-WHA-TFM

In the Superior Court of the State of California in and for the County of Los Angeles
Leslie Hensley and Rick Hensley, *Plaintiffs*, vs. Peter T. Hoss, as trustee on behalf of the Cone Fee Trust; Plains Exploration & Production Company, a Delaware corporation; Rayne Water Conditioning, Inc., a California corporation; and DOES 1 through 100, *Defendants.*
Case Number SC094173

In the Superior Court of the State of California in and for the County of Santa Barbara, Santa Maria Branch
Clifford and Shirley Adelhelm, et al., all individually, *Plaintiffs*, vs. Unocal Corporation, a Delaware Corporation; Union Oil Company of California, a California corporation; Chevron Corporation, a California corporation; ConocoPhillips, a Texas corporation; Kerr-McGee Corporation, an Oklahoma corporation; and DOES 1 though 100, *Defendants.*
Case Number 1229251 (Consolidated with case number 1231299)

In the United States District Court for Eastern District of Arkansas, Eastern District of Arkansas
Harry Stephens Farms, Inc, and Harry Stephens, individual and as managing partner of Stephens Partnership, *Plaintiffs*, vs. Helena Chemical Company, and Exxon Mobil Corp., successor to Mobil Chemical Co., *Defendants.*
Case Number 2:06-CV-00166 JMM (Consolidated with case number 4:07CV00278 JMM)

In the United States District Court for the Western District of Arkansas, Texarkana Division
Rhonda Brasel, et al., *Plaintiffs*, vs. Weyerhaeuser Company and DOES 1 through 100, *Defendants.*
Civil Action Number 07-4037

In The Superior Court of the State of California County of Santa Cruz
Constance Acevedo, et al. *Plaintiffs* Vs. California Spray Company, et al. *Defendants*
Case No CV 146344

In the District Court of Texas 21st Judicial District of Burleson County
Dennis Davis, *Plaintiff*, vs. Burlington Northern Santa Fe Rail Way Company, *Defendant.*
Case Number 25,151

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622

Letter F

Adams Broadwell Joseph & Cardozo

August 14, 2020

F.1 This comment is an introductory comment and provides a general summary of the proposed project's characteristics. This comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

F.2 This comment provides an introductory summary of the more specific comments provided in the comment letter. This summary does not provide any details on the specific issues previewed.

Based on review of the substance of the Draft EIR and responses to these comments, the County disagrees that revision and recirculation of the Draft EIR is necessary.

The introduction and overview provided in this comment regarding the adequacy of the Draft EIR is acknowledged. However, this comment does not provide any specific information regarding the manner in which the Draft EIR is inadequate or how the Draft EIR fails to meet CEQA requirements. Please refer to responses to comments below, including, but not limited to, responses F.6 through F.58 for additional detailed responses to each of the individual comments.

Under CEQA, recirculation is only required when the lead agency adds "significant new information" to an EIR after the public comment period and prior to certification of the EIR (*Laurel Heights Improvement Association v. Regents of the University of California* [1993] 6 Cal. 4th 1112, 1128). "Information" can include changes in the project or environmental setting as well as additional data or other information (CEQA Guidelines Section 15088.5[a]). In addition, CEQA does not require revisions to the analysis based upon argument, speculation, or unsubstantial opinion (CEQA Guidelines Section 15064[f][5]). No comments received in this comment letter result in any new impact or change in the significance level of impacts disclosed in the Draft EIR, or the require new mitigation, consideration of new alternatives, or any other substantial change to the Draft EIR. Therefore, recirculation of the Draft EIR is not required.

This comment does not raise any other specific issues related to the adequacy of the Draft EIR; therefore, no further response is required.

F.3 The proffered qualifications of the comment preparers and the attached letters are noted. This specific comment does not provide any specific or substantive comments or concerns regarding the adequacy of the Draft EIR; therefore, no further response is necessary. Please see also responses to comments F.6 through F.58.

F.4 The overview of the Citizens for Responsible Solar (Citizens) organization and the concerns related to solar projects is noted. This comment does not raise a specific issue related to the adequacy of the Draft EIR, therefore, no further response is required.

F.5 This comment provides a "Legal Background", an overview summary of the purpose and requirements of CEQA. This comment does not raise a specific issue related to the adequacy of the Draft EIR, therefore, no further response is required.

F.6 This comment states that the Draft EIR fails to properly disclose, analyze, and mitigate the project's significant impacts on biological resources, air quality, public health, and climate change. The comment also states that some of the proposed mitigation measures fail to mitigate the impact to a less than significant level or to the degree purported by the Draft EIR, and that some mitigation measure. Comments specific to each topic are addressed in the response to comments. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

The County disagrees with the assertion that the Draft EIR fails to consider all of the project's potentially significant effects, including those referenced in this comment – biological resources, air quality, public health, and climate change. Please refer to responses to comments below, including but not limited to responses F.6 through F.58.

Additionally, this comment states that the Project's impacts are not supported by substantial evidence. The commenter does not provide specifics regarding where the analysis in the Draft EIR is purportedly inadequate. The County complied with CEQA and provided substantial evidence, as defined by the CEQA Guidelines Section 15384(a)(b). Argument, speculation, unsubstantiated opinion or narrative, evidence that is inaccurate or erroneous, or evidence that is not credible shall not constitute substantial evidence. The analysis and conclusions within the Draft EIR were supported by relevant information and technical studies prepared by experts. The analysis related to the commenters identified topics specifically by this comment and elsewhere in the comments (including but not limited to biological resources, air quality, public health, and climate change) are addressed within the Draft EIR, prepared by HDR, and supported by technical studies prepared by Stantec Consulting Services (Stantec). These reports were therefore, prepared by experts, provide substantial evidence, and are available to aid decision-makers are they consider the merits of the Project.

F.7 This comment is summarizes more specific comments provided in, and responded to in responses F.8 through F.24g. The comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.8 The overview of the requirements under CEQA for the existing environmental setting is acknowledged. The comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.9 The overview of the requirements under CEQA for the existing environmental setting is acknowledged. The comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.10 The commenter states that the terms used for the baseline study are not defined. The commenter is referred to the second and third paragraphs in Section 2.21 of Appendix E of the Draft EIR that detail the habitat assessment and reconnaissance-level survey procedures.

The commenter further states no protocol level surveys were performed for desert tortoise or burrowing owl. Biologists performed a reconnaissance-level survey as detailed in Appendix E, Section 2.21. The reconnaissance-level survey was conducted instead of species specific protocol-level surveys to initially "identify and assess habitat that may be capable of supporting special-status wildlife species and to document the presence/absence of special-status biological resources." For species-specific

surveys, the commenter is referred to Mitigation Measure BIO-4 that states, "A qualified biologist shall conduct focused presence/absence surveys for Desert Tortoise for 100-percent of the project footprint pursuant to the October 19, 2019 Version of the USFWS Desert Tortoise Survey Protocol." and Mitigation Measure BIO-6 that states "Take Avoidance (pre-construction) surveys for burrowing owl shall be completed prior to project construction. Surveys shall be conducted as detailed within Appendix D of the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game [CDFG] 2012)." The commenter is also referred to the Stantec letter to The County dated August 4, 2020 that further outlines the compensatory mitigation for desert tortoise (see comment Letter E).

The commenter's assertions suggest that CEQA requires additional studies until all uncertainty regarding existing environmental conditions or a project's impacts thereon have been removed. This is incorrect. As the California Supreme Court has emphasized, an EIR need not achieve "technical perfection or scientific certainty." Sierra Club v. County of Fresno (2018) 6 Cal.5th 502, 515. Instead, CEQA requires "adequacy, completeness, and a good-faith effort at full disclosure." CEQA Guidelines § 15003(i). The appropriate degree of specificity and analysis a given issue warrants depends on "the nature of the project and the rule of reason." North Coast Rivers Alliance v. Kawamura (2015) 243 Cal.App.4th 647, 679; see also CEQA Guidelines Section 15151 ("An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible."). "CEQA does not require a lead agency to conduct every recommended test and perform all recommended research to evaluate the impacts of a proposed project. The fact that additional studies might be helpful does not mean that they are required." Ass'n of Irritated Residents v. Cty. of Madera, (2003) 107 Cal. App. 4th 1383, 1396, 133 Cal. Rptr. 2d 718. In addition, see responses to comments F.11-F.14, among others. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.11 The commenter states that a survey cited in the Draft EIR found the flat-tailed horned lizard to occur in the Project area as well as the loggerhead shrike. The commenter further states that the survey completed by Stantec did not report or properly characterize the loggerhead shrike species and, subsequently, the Draft EIR did not analyze the species' likelihood to occur in the Project site. The loggerhead shrike occurrence in the Appendix F of the Draft EIR is listed as being observed in or near the Project site, therefore, since the observation was not expressly stated as being within the Project site the species was listed with a moderate potential to occur both in Section 5.4 of Appendix E of the Draft EIR and Section 3.4 of the Draft EIR. The commenter is referred to the Mitigation Measure BIO-7 which outlines the pre-construction nesting bird surveys that would also include nesting loggerhead shrike observed within and 500 feet surrounding the impact areas. The project site was properly characterized in the Draft EIR. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.12 The commenter states that the Draft EIR only addresses 28 species, while subsequent data review performed by a Mr. Smallwood concluded there are 91 special-status species with a potential to occur near the Project site. Please refer to response to comment F.14, which discusses the inclusion of special-status species in the Draft EIR. Mr. Smallwood's assertions are also addressed in response to comments F.59 through F.73. The comment is noted, and no further response is necessary.

F.13 In relation to response to comment F.12, the commenter asserts that the Draft EIR does not adequately analyze all special status species with the potential to occur in the Project area and provides evidence in the form of a table in the following comment. The commenters concerns are addressed in response to comment F.14. The cross reference to Section III(A)(3) is noted and addressed in responses to comments F.20 through F.24a-h below. The comment is noted, and no further response is necessary.

F.14 The commenter provides a table of special-status species with a potential to occur in the Project area (91 total species). Special-status species with a potential to occur in the vicinity of the Project area were reviewed using various databases (as outlined in Section 2.1 of Appendix E of the Draft EIR) and are listed in the tables in Section 5.3 and 5.4 of Appendix E of the Draft EIR. These tables identifying the potential presence of special-status species were then used as a screening tool to determine which potential special-status species could occur within the Project area. Field surveys were then conducted within the Project site to determine the ground-truth of potential special-status species to occur within the Project area. Based on several factors, including lack of suitable habitat present within the Project area, Project area occurring outside known geographic and/or elevation range of species, and the results of desktop data review, the special-status species with a potential to be impacted by the Project were then developed and analyzed in the Draft EIR. The additional species provided by the commenter are acknowledged, however, these species do not have the potential to occur based on survey results and data review, provided in Appendix E of the Draft EIR. The comment is noted, and no further response is necessary.

F.15 The comment regarding the purported failure of the Draft EIR to adequately analyze impacts on special status species is acknowledged. This is an introductory comment, and subsequent comments are provided in an effort to support this claim. Please refer to responses to comments F.16 through F.26 which address the specific comments.

F.16 The comment regarding fatality rates for burrowing owls and the conclusions in the Draft EIR regarding this analysis is acknowledged. As discussed in the Draft EIR, burrowing owls were not identified during surveys, however, occurrence data for burrowing owls occurs within one mile of the Project site and suitable nesting and foraging habitat occurs within the Project site. The Draft EIR further states that the high visibility of solar panels reduces the potential for avian collisions and any burrowing owls present in the area would likely utilize the fencing as perches, rather than collide with the fencing at the perimeter of the site. The source provided by the commenter relies on the assumption that burrowing owls would collide with PV solar panels after losing their habitat. Because the Project would not result in substantial loss to burrowing owl habitat and since there is suitable habitat in the surrounding landscape, the potential for collisions as a result of the new solar panels would be limited. Mr. Smallwood's methodologies and predictions are acknowledged but not affirmed. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.17 The commenter states that habitat loss is not adequately analyzed in the Draft EIR. The Draft EIR discusses habitat loss on pages 3.4-25 through 3.4-29. Additionally, Mitigation Measures BIO-1 through BIO-9 are proposed which would to avoid and minimize potential impacts to special-status species to a less than significant level. Specifically, habitat related to special-status bird species is discussed on Draft EIR page 3.4-28. The Draft EIR states that 115.6 acres of potential suitable foraging habitat would be lost as a result of the Project. This loss would represent less than 0.0003 percent of available habitat in the area. A less than 0.0003 percent loss of habitat does not represent a significant impact related to special-status bird species. Additionally,

the commenter states that cumulative impacts related to habitat loss were not discussed in the Draft EIR. The commenter is referred to Draft EIR pages 5-9 and 5-10 which adequately discuss cumulative impacts related to biological resources, and habitat loss, specifically. Smallwood's methodologies and predictions are acknowledged but not affirmed. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary. Therefore, no further response is necessary on this topic.

F.18 The comment states that the Draft EIR does not adequately address wildlife movement and provides evidence as to why the Draft EIR does not adequately address this topic. The Project site and immediately surrounding area currently includes features that could block and hinder the movement of wildlife including features such as canals, transmission lines, an access road, paved and unpaved roads, and a residence. Additionally, there are numerous waterways, which when flowing, would prevent small species from moving through the Project site. The Project site in its pre-project, baseline condition is fragmented and only includes a small portion of important habitat which is surrounded by larger expanses of developed areas. Further a similar, large expanse of habitat occurs to the east of the Project site, which would provide a larger, more useful swath of land that would likely be used for wildlife movement through the area. Therefore, the analysis related to wildlife movement within the Draft EIR and the related conclusions are adequate. The comment is noted, and no further response is necessary.

F.19 The commenter states that the Draft EIR does not adequately address the cumulative impact of collision fatalities and loss of breeding capacity due to habitat loss. The CEQA Guidelines Section 15130(b) provides the following parameters relative to cumulative impact analysis: the discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness and should focus on the cumulative impact to which the identified related projects contribute, rather than the attributes of other projects which do not contribute to the cumulative impact. As discussed in Section 3.4 of the Draft EIR, the Project would not result in a significant impact related to collisions and loss of habitat with mitigation incorporated. Additionally, Mitigation Measures BIO-1 through BIO-9 also address the Project's potential impact which if not mitigated could have the potential to contribute incrementally to potential cumulative impacts. Therefore, the cumulative analysis in the Draft EIR (Section 5.3.3 of the Draft EIR) reflects this level of detail in the cumulative analysis. The cumulative analysis concludes that the Project would comply with the relevant laws, regulations, and guidelines pertaining to biological resources, thus the Project would not contribute to a cumulative biological resources impact. Compliance with laws, regulations, and guidelines is sufficient analysis and no further analysis or mitigation is required related to potential cumulative impacts. The comment is noted, and no further response is necessary.

F.20 The commenter states that the Draft EIR fails to adequately mitigate impacts related to biological resources and does not include all feasible mitigation measures to reduce potential impacts to biological resources. This is an introductory comment, and subsequent comments are provided to support this claim. Please refer to responses to comments F.21 through F.24h for detailed responses to each of these comments. The comment is noted, and no further response is necessary.

F.21 The commenter claims that the pre-construction mitigation measures included in the Draft EIR are not sufficient and that detection surveys should be included. Please refer

to Mitigation Measures BIO-1, BIO-4, BIO-6, BIO-7, and BIO-9 in the Draft EIR that detail the focused species surveys to be conducted. Specifically, Mitigation Measures BIO-4 and BIO-6 outline the agency survey protocols and guidelines to be used. Please also refer to Mitigation Measures BIO-2 and BIO-3 in the Draft EIR that outline additional measures to further reduce potential impacts to special-status biological resources including the requirement for a "Project Biologist who shall be responsible for overseeing compliance with protective measures for the biological resources during vegetation clearing and work activities within and adjacent to areas of native habitat." Mr. Smallwood's methodologies and predictions are acknowledged but not affirmed. See also response to comments E.2 and F.10. The comment is noted, and no further response is necessary.

F.22 The commenter reiterates claims addressed in the responses to comments above. The commenter states that the mitigation measures (Mitigation Measures BIO-2, BIO-3, and BIO-5 specifically) do not address potential avian collisions or habitat loss. Please refer to Mitigation Measure BIO-2 which specifically states that, "to reduce the potential indirect impact on migratory birds, bats and raptors, the project will comply with the Avian Powerline Interaction Committee (APLIC) 2012 Guidelines for overhead utilities, as appropriate, to minimize avian collisions with transmission facilities."

Further, as discussed in the Draft EIR, avian collisions related to electrocution is not anticipated since the distance between energized components along the transmission lines is generally insufficient to present avian electrocution risk (Draft EIR page 3.4-28). Further, avian collisions with the solar panels or any ancillary facilities associated with the solar facility such as the gen-tie line would be reduced to a less than significant impact with implementation of Mitigation Measures BIO-5 and BIO-8. Therefore, with compliance with the provisions of the APLIC guidance as well as the requirements in Mitigation Measures BIO-5 and BIO-8, the project would result in a less than significant impact associated with avian collisions, and no additional mitigation measures would be required to further reduce potential impacts. Additionally, the habitat loss specifically related to special-status bird species associated with the project (see response to comment F.17), would represent less than 0.0003 percent loss when compared to the available habitat in the area, and therefore would not result in a potentially significant impact that would require mitigation. The comment is noted, and no further response is necessary.

F.23 The commenter states that Mitigation Measure BIO-8 is inadequate because it would defer the development of the Bird and Bat Conservation Strategy (BBCS) until after the Project is approved. The BBCS is not deferred. Mitigation Measure BIO-8 includes development of a BBCS and includes a list of components to be included in the BBCS as well as sufficient performance standards and requirements for the BBCS including; a description of the existing habitat and avian and bat species within the Project area, specifications for pre-construction and post-construction surveying and monitoring, and minimization and corrective actions necessary to avoid or minimize potential impacts to bird and bat species. Additionally, further reporting requirements and performance standards are included in the Mitigation. Monitoring, and Reporting Program which will be adopted as part of the project. The comment is noted, and no further response is necessary.

F.24 The commenter claims eight identified mitigation measures that are not in Draft EIR must be considered and implemented by the County. The identification of mitigation measures is one of the purposes of CEQA. According to the CEQA Statute Section 21002, the procedures in CEQA are intended to "assist public agencies in identifying both the significant environmental effects of proposed projects and the feasible…mitigation measures which will avoid or substantially lessen such significant effects."

There is no showing that the proposed mitigation measures will avoid or mitigate a possible significant effect of the project, as required by CEQA. Moreover, there is also no showing as to whether these proffered mitigation measures are required to mitigate a significant effect or that they are "feasible" as that term of art is defined in CEQA (Public Resource Code Section 21061.1; 14 CCR 15364.) Only feasible mitigation measures that reduce a potentially significant impact are required.

There are also constitutional limits on mitigation that can be imposed on a project that were defined by two U.S. Supreme Court rulings (*Dolan vs. City of Tigard, and Nollan vs. California Coastal Commission*). These rulings identify that mitigation must have both a nexus and rough proportionality to the impact caused by the project. The mitigation measures identified in the Draft EIR are in proportion to potential effects. No additional mitigation would be required to reduce or lessen potentially significant impacts further than the mitigation measures already proposed in the Draft EIR. Otherwise, the comment is noted, and no further response is necessary.

F.24a Detection Surveys – Please refer to Mitigation Measures BIO-1, BIO-4, BIO-6, BIO-7, and BIO-9 in the Draft EIR which include targeted species surveys including surveys following CDFW and USFWS guidelines and protocols. The comment is noted, and no further response is necessary.

F.24b Post-construction Monitoring of Project Impacts – Please refer to Mitigation Measure BIO-8 in the Draft EIR which states the "post-construction monitoring plan will be implemented and "will include a description of standardized carcass searches, scavenger rate (i.e., carcass removal) trials, searcher efficiency trials, and reporting." The comment is noted, and no further response is necessary.

F.24c Behavior Surveys – Completion of behavior surveys is not necessary and would be outside of the scope of CEQA. CEQA requires that mitigation be included to avoid or lessen a project's significant environmental impacts (CEQA Guidelines Section 15126.4[a]). Potential impacts related to birds and bat collisions have been adequately discussed and mitigation provided, where appropriate in the Draft EIR as discussed in these responses to comments. The comment is noted, and no further response is necessary.

F.24d Transparent Reporting – Biological monitoring and reporting is required by mitigation measures proposed in the Draft EIR. Specifically, please refer to Draft EIR Mitigation Measure BIO-8 which states that the "Monitoring results will be reviewed annually by the Applicant and the County of Imperial, in consultation with CDFW and [United States Forest Service] USFWS." The comment is noted, and no further response is necessary.

F.24e Adequate Fatality Monitoring – Fatality monitoring and reporting is required by mitigation measures proposed in the Draft EIR. Specifically, please refer to Draft EIR Mitigation Measure BIO-8 which states the "post-construction monitoring plan will include a description of standardized carcass searches, scavenger rate (i.e., carcass

removal) trials, searcher efficiency trials, and reporting." The comment is noted, and no further response is necessary.

F.24f County-Wide Assessment of Solar Impacts – Please refer to Draft EIR Mitigation Measure BIO-8 which states the "post-construction monitoring plan will include a description of standardized carcass searches, scavenger rate (i.e., carcass removal) trials, searcher efficiency trials, and reporting." Also as required by Mitigation Measure BIO-8, "Monitoring results will be reviewed annually by the Applicant and the County of Imperial, in consultation with CDFW and USFWS." Moreover, a project-specific EIR is not the appropriate forum for policy recommendations. The comment is noted, and no further response is necessary.

F.24g Implement Mitigation Measures with Sound Experimental Designs - CEQA requires that mitigation be included to avoid or lessen a project's significant environmental impacts (CEQA Guidelines Section 15126.4[a]). Potential impacts related to birds and bat collisions have been adequately discussed and mitigation provided, where appropriate in the Draft EIR as discussed in these responses to comments. The comment is noted, and no further response is necessary.

F.24h Compensatory Mitigation – Please refer to Draft EIR Mitigation Measure BIO-10 which addresses compensatory mitigation for riparian woodland and ephemeral wash habitats. Please also refer to responses to comment Letter E which outlines the potential compensatory mitigation for desert tortoise, should live or active tortoise is detected on-site as part of pre-construction surveys. The comment is noted, and no further response is necessary.

F.25 This introductory comment regarding the whether the Draft EIR adequately discloses, analyzes, and mitigates impacts on air quality and public health is noted. The comment further provides a summary list of reasons why the commenter believes the Draft EIR analysis is inadequate. Specific responses to these comments are provided in responses to comments F.26 through F.52. This comment does not otherwise raise a substantive issue regarding the content of the Draft EIR, and is noted for the record.

F.26 The commenter states that since the project did not quantify emissions from construction and operations of the fiberoptic cable and gen-tie line, and that as a result the Draft EIR's conclusion of a less than significant impacts for air quality is unsupported. The commenter is incorrect in both respects.

Draft EIR Table 3.3-8 clearly provides emissions estimates for construction of the gen-tie line as part of the "Gen-Tie, Site Restoration" Phase of the Project (see, Table 3.3-8, "Gen-Tie, Site Restoration"). For emissions associated with construction of the gen-tie. Regarding emissions associated with the construction of the fiberoptic cable, Draft EIR page 3.7-15 states that installation of the fiberoptic cable would require substantially less construction equipment and a shorter duration compared to the construction of the solar energy facility and gen-tie line. Emissions estimates from those components are provided in Draft EIR Table 3.3-8. As stated in the Draft EIR, none of the project's construction phases would exceed the ICAPCD daily construction thresholds. Therefore, because the fiberoptic cable installation phase would have less equipment than these phases, it is reasonable to conclude that the emissions associated with construction of the fiberoptic cable would also be below ICAPCD daily construction thresholds.

Draft EIR Table 3.3-9 provides emissions estimates for operation of the Project as a whole. As set forth in the Draft EIR, operational emissions from the Project are expected to occur from the minimal operations and maintenance activities needed for

the Project, of which the gen-tie line and fiberoptic cable are components. Emissions information for the Project during operations is provided in Table 3.3-9, and are based on the conservative assumption that four one-way worker trips per day would be generated for the Project, in addition to the daily trips associated with panel washing. (Draft EIR p. 3.3-15.) Therefore, estimated operational emissions from gen-tie line and fiberoptic cable have already been provided and analyzed as part of the overall operation of the Project. Based on this, the Draft EIR's conclusion that there are a less than significant impact with respect to regional air quality and air quality from construction and operations are supported by substantial evidence. Because potential operational emissions from the gen-tie line and fiberoptic cable were evaluated as part of the Draft EIR's analysis of the Project's potential impacts to air quality, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.27 The comment states that the Project's CalEEMod input modifications were "not justified", and stated that operational emissions may have been underestimated because the inputs were based on a construction-related vehicle fleet mix, rather than an operational fleet mix. The comment does not provide evidence demonstrating, or otherwise assert, that a different operational fleet mix is more appropriate. The air quality modeling conducted for the Draft EIR air quality analysis did involve modifying the operational fleet mix consistent with CalEEMod methodology. In this case, the operational fleet mix was modified to accurately represent emissions from site inspection (maintenance) and panel washing worker vehicles traveling to the site during operations, which would be composed of light-duty autos and light-duty trucks. The reason that the modifications were based on a "construction-related vehicle fleet mix" is due to the default fleet mixes in CalEEMod. In CalEEMod, the default fleet mix for construction worker vehicle trips is a light-duty fleet mix consisting of light-duty autos and light-duty trucks. In contrast, the default operational fleet mix includes all possible vehicle types, such as: light-duty autos, light-duty trucks, light-heavy duty trucks, medium-duty vehicles, motorcycles, motor homes, urban buses, school buses, other buses, medium heavy-duty trucks, and heavy heavy-duty trucks. For this project, the default operational fleet mix does not accurately reflect the types of vehicles that can be reasonably expected during operations. Therefore, the operational fleet mix for maintenance worker vehicles was modified to reflect a fleet mix with light-duty autos and light-duty trucks. As a result, the Draft EIR correctly estimates anticipated operational impacts based on the likely operational vehicle fleet mix, and are appropriately relied upon to determine the significance of potential air quality impacts.

In response to the comment F.27, all worker and haul trucks for operations were re-modeled under the construction section of the operations CalEEMod output file, and included an operational fleet mix of light-duty autos and light-duty trucks, which best represents emissions from maintenance worker vehicles. The results of the requested re-modeling are provided in Response to Comments F.32, Tables 1 and 2. The modifications were again done consistent with CalEEMod methodology. While the additional modeling will be included in the Final EIR, this information is not significant because it does not demonstrate that a new significant impact would result from the project or that there is a substantial increase in the severity of an environmental impact. This addition to the Draft EIR merely amplifies the County's determination that potential air quality impacts from the Project will be less than significant. Therefore, there is no need to recirculate the Draft EIR in response to this comment.

F.28 The comment states that the Draft EIR did not include all operational emission values associated with the Project because specific land uses, the PV panels and substation facility, were not included in the CalEEMod output files. The comment states that as a result, the model underestimates operational emissions, and makes the Draft EIR's air quality analysis incorrect and incomplete.

The solar panel arrays and substation were not included in the operational emissions modeling because neither component, would result in emissions from consumer products, architectural coatings, landscaping, or consume natural gas and electricity, or generate waste. The project's operational emissions were appropriately based on mobile sources, offroad equipment, and water and wastewater conveyance, actual potential sources of emissions during operations. It should be noted that only GHG emissions are associated with water and wastewater conveyance, thus criteria pollutants would not result from this Project activity. As a result, the air emissions model included the correct inputs, did not underestimate anticipated operational emissions, and were appropriately relied upon by the County to analyze the Project's air quality impacts.

Further, as stated above in the response to comment F.27, the air emissions model was, as suggested by the CRS comments, re-run, and updated the operational modeling to be consistent with the construction CalEEMod land use categorization. The updated operational modeling includes a "General Light Industry" land use category with a size of 100 acres totaling 4,356,000 square feet. CalEEMod uses the area of the project to estimate operational emissions from area sources such as consumer products, architectural coatings and landscaping, mobile sources, natural gas combustion, electricity consumption, water and wastewater conveyance, waste generation, and offroad equipment.[1]

The emissions estimates are provided in Tables 1 and 2 presented further in response to comment F.32. As discussed in response to comment F.32, the suggested, updated modeling does not change the Draft EIR's significance conclusions regarding air quality impacts. While the additional modeling will be included in the Final EIR, this information is not significant because it does not demonstrate that a new significant impact would result from the project or that there is a substantial increase in the severity of an environmental impact. This addition to the Draft EIR merely amplifies the County's determination that potential air quality impacts from the Project will be less than significant. Therefore, there is no need to recirculate the Draft EIR in response to this comment.

F.29 The comment states that the Draft EIR underestimated the number of operational vehicle trips by 10 one-way trips for activities relating to routine maintenance activities such as panel washing. Comment F.29 states that the Draft EIR should have included 10 one-way trips per week in the modeling to account for routine maintenance activities. Comment F.78, which is cited as support for Comment F.29, states that the model should have included an additional 10 daily one-way trips in the modeling to account for routine maintenance activities. Both assertions are incorrect. As stated on Draft EIR p. 3.10-8, ten (10) one-way trips associated with routine maintenance activities such as panel washing are expected to occur over a total of 20 days per year, not on a weekly basis as stated in Comment F.29, and not on a daily basis, as stated in Comment F.78.

Appendix D to the Draft EIR evaluated operational vehicle trips in both the construction section and operations section of the CalEEMod output. Mobile trips related to panel washing events, which included 10 one way trips (4 additional workers trips and 6 haul truck trips) that would occur over a total of 20 days per year, were accounted for under the construction section of the operations CalEEMod output file. The operations output

[1] CalEEMod does not allow users to zero out the number of days of landscaping, therefore landscaping emissions are shown in the CalEEMod output file, over-predicting potential effects, but the Project emissions summaries will not include them because the project would not include landscaping activities.

file included notes stating that panel washing activities were evaluated under the construction section. Therefore, emissions associated with vehicle trips during operations were appropriately analyzed in the Draft EIR and were not underestimated. There is no need to revise or recirculate the Draft EIR in response to this comment.

The comment also states that the Draft EIR failed to support changes to trip lengths and trip purposes, and made changes against the recommendations of the CalEEMod User's Guide. This is incorrect. The longest default trip length in CalEEMod for Imperial County operational trips is 8.9 miles, which was incorporated into the air quality modeling for the Project. Further, the trip purposes in CalEEMod were modified in the Draft EIR to provide a more conservative estimate of emissions. Trip purposes were modified to 100 percent primary trips because the only reason to travel to the site is for maintenance or panel washing activities. The CalEEMod User's Guide describes diverted trips as "diverted trips are assumed to take a slightly different path than a primary trip and are assumed to be 25% of the primary trip lengths." Additionally, the CalEEMod User's Guide defines pass-by trips as "Pass-by trips are assumed to be 0.1 mile in length and are a result of no diversion from the primary route." Based on this, categorizing trips as 100 percent primary would result in a conservative estimate of emissions compared to using the default CalEEMod trip purpose values.

Furthermore, as stated above in response to comment F.27, the air quality model was re-run. The model used a trip length of 10 miles, as local workers would be responsible for the Project's maintenance activities, which is an even more conservative estimate than the default CalEEMod trip length for Imperial County. As with the modeling presented in Draft EIR Appendix D, trip purposes were modified from the CalEEMod default of 25 percent to 100 percent primary trips because the only reason to travel to the site is for maintenance or panel washing activities.

As stated in response to comments F.30 through F.32, in the updated operational CalEEMod output files, mobile emission sources (workers and haul trucks) were estimated under the construction section of the operational output file. The updated modeling included 4 worker trips for site maintenance, 4 worker trips and 6 haul truck trips for panel washing events, and each had a trip length of 10 miles making it consistent with the previous modeling. As demonstrated in Tables 1 and 2, these modeling results confirm that potential operational emissions from the Project are below the ICAPCD operational thresholds; therefore, operational impacts would be less than significant.

While the additional modeling suggested will be included in the Final EIR, this information is not significant because it does not demonstrate that a new significant impact would result from the project or that there is a substantial increase in the severity of an environmental impact. This addition to the Draft EIR merely amplifies the County's determination that potential air quality impacts from the Project will be less than significant. Therefore, there is no need to recirculate the Draft EIR in response to this comment.

F.30 This comment states that the Draft EIR did not fully explain changes to the Project's construction and operational paved road percentages, and that the model contradicts the paved/unpaved roads presented in the Draft EIR. Notes explaining the assumptions and inputs were incorporated into CalEEmod, and are shown at Draft EIR, Appendix D, pages 100, 101, 115, 116, 130, 131. Further, the modeled percentages of 98% were an appropriate assumption at the time that the model was run.

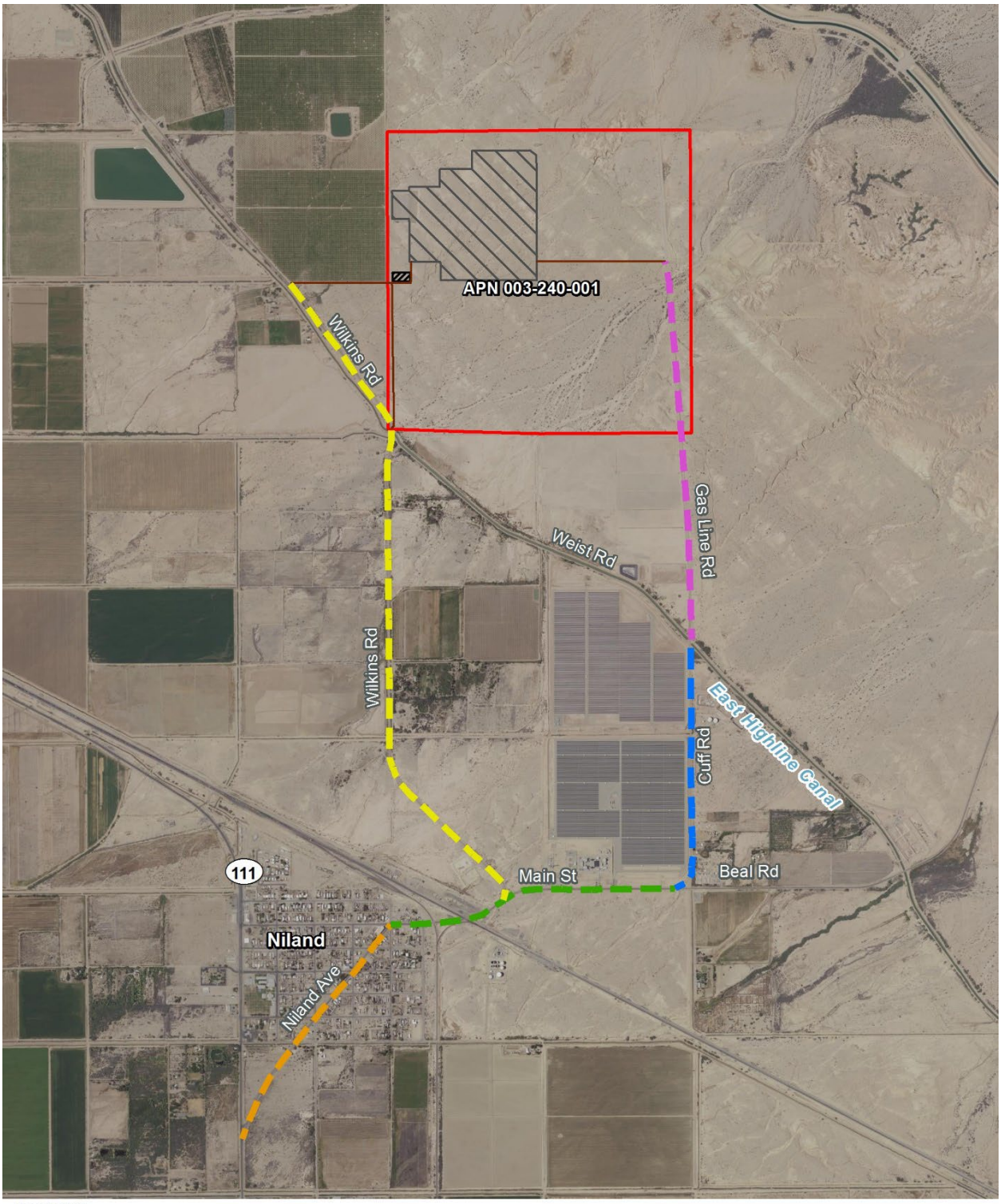
In response to comment F.30, the County reexamined the percentages for paved roads and unpaved roads used in the air quality model, and determined that it was appropriate to update the paved and unpaved percentages in the air quality modeling.

Draft EIR page 3.10-2 describes the Project's access roadways and states that paved roads would include State Route 111, Niland Avenue, Main Street, and Wilkins Road. The Draft EIR also states that unpaved roads would include Gas Line Road and Cuff Road. Additionally, Draft EIR Figure 3.10-1 depicts the location of each of these roads in proximity to the Project site.

For construction mobile emissions, the paved road percentages were updated to be representative of the Project roadways, and a worst-case route was assumed that would include the longest length of unpaved roads. The worst-case route would be travel on any paved road to the intersection of Cuff Road and Beal Road, then traveling north along Cuff Road and Gas Line Road to reach the eastern portion of the project site and then traveling west using the unpaved emergency access road to reach the project site. The length of the unpaved roads, Gas Line Road, Cuff Road, and the emergency access road total approximately 2.6 miles.

The trip lengths assumed in the CalEEMod for worker and vendors were 10.2 miles and 11.9 miles, respectively. The 2.6 miles of unpaved road represents 25.5 percent of the worker trip length (10.2 miles), therefore, the paved road percentage for worker trips would be 74.5 percent. The 2.6 miles of unpaved road represents 21.9 percent of the vendor trip length (11.9 miles); therefore, the paved road percentage for vendor trips would be 78.1 percent. The paved percentage values were incorporated into the updated modeling.

The same methodology was applied for mobile vehicle trips during operations. Based on GIS data, the primary access roads for the project site are located west and south of the project site via Wilkins Road. The primary access roads would be unpaved, but Wilkins Road is paved as described above. The unpaved access roads had a total length of approximately 1.6 miles. The 1.6 miles of unpaved road represents 15.9 percent of the operations trip length (10 miles), therefore, the paved road percentage for mobile trips during operations would 84.1 percent. The paved percentage values were incorporated into the updated modeling. While the additional modeling suggested will be included in the Final EIR, this information is not significant because it does not demonstrate that a new significant impact would result from the project or that there is a substantial increase in the severity of an environmental impact. This addition to the Draft EIR merely amplifies the County's determination that potential air quality impacts from the Project will be less than significant. Therefore, there is no need to recirculate the Draft EIR in response to this comment.



F.31 The comment states that mitigation measures were not substantiated or explained in the modeling output, and that as a result, SWAPE was unable to verify the accuracy of the Draft EIR air quality modeling. This is incorrect. In accordance with the CalEEMod User's Guide, the modeling output provided comments describing the mitigation measures that were incorporated into the modeling. For PM10, the Draft EIR explains that standard mitigation measures for fugitive dust for all projects in Imperial County were included in the model. (See, Draft EIR, Appendix D, p. 33.) The Draft EIR identifies the standard measures for fugitive dust (PM10) control on page 3.3-18 of the Draft EIR. Further, the modeling output file provided comments explaining the additional measures for fugitive dust that would be incorporated into the Project. For example, the comments explained that watering would occur two times per day, which is related to the "Water Exposed Area" mitigation measure outlined for fugitive dust control measures in Section 3.3, Air Quality. The "Reduce Vehicle Speeds on Unpaved Roads" comment corresponds to the measure described in Draft EIR page 3.3-18, which states vehicle speeds would not exceed 15 miles per hour.

Draft EIR pages 3.3-17 and 3.3-18 outlines the mitigation measures that would be implemented for the Project. Mitigation Measure AQ-2 states that the Project would comply with the *Regulation VIII-Fugitive Dust Control Measures*, and identifies both standard measures and discretionary methods to be implemented by the project to reduce fugitive dust emissions. AQ-2 also provides that implementation and compliance with the ICAPCD's requirements for fugitive dust control will be verified by ICAPCD as part of the grading permit approval process.

Furthermore, the updated construction modeling quantified fugitive dust emissions reductions using the previous mitigation measures, "Water Exposed Area" and "Reduce Vehicle Speeds on Unpaved Roads", as well as an additional measure, "Use Soil Stabilizer." The use of soil stabilizers is a common and effective method for reducing fugitive dust and was previously outlined in Mitigation Measure AQ-2. The updated construction CalEEMod output files explicitly state that mitigation measures are consistent with requirements of the ICAPCD. Therefore, there is no need to recirculate the Draft EIR in response to this comment.

F.32 This comment states that air quality modeling is incomplete, it underestimates emissions, and should not be relied upon to determine project significance. This comment is a summary of Comments F.26 through F.31. Responses to these specific comments are provided in response to comments F.26 through F.31. As explained in response to comments F.26 through F.31, air quality modeling for the project correctly relied upon appropriate inputs and information based on anticipated Project activities, and there is substantial evidence to support the analysis presented in the Draft EIR.

Furthermore, as explained in response to comments F.26 through F.31, the air quality modeling was re-run to address comments raised by the commenter, even though the County does not necessarily agree with the commenter's statements or conclusions with respect to the Draft EIR's air quality analysis. These modeling results for air quality are shown in Table 0.2-2 and Table 0.2-3 below. As shown in Table 0.2-2 and Table 0.2-3, the Project's emissions remain below all ICAPCD thresholds for construction and operations, therefore, construction and operational regional emissions impacts would remain less than significant. While the additional modeling suggested will be included in the Final EIR, this information is not significant because it does not demonstrate that a new significant impact would result from the project or that there is a substantial increase in the severity of an environmental impact. This addition to the Draft EIR merely amplifies the County's determination that potential air quality impacts from the Project will be less than significant. Therefore, there is no need to recirculate the Draft EIR in response to this comment.

Table 0.2-2. Project Maximum Daily Construction Emissions

Construction Phase	ROG	NOx	CO	PM_{10}
	Maximum Daily Emissions (lb/day)			
Site Preparation	4.10	39.72	25.73	63.87
Facility Installation	3.38	30.38	25.03	86.38
Gen tie, Site Restoration	1.97	17.95	14.83	43.36
Maximum Daily Emissions	**4.10**	**39.72**	**25.73**	**86.38**
ICAPCD Thresholds	75	100	550	150
Exceeds Threshold?	**No**	**No**	**No**	**No**

Table 0.2-3. Project Maximum Daily Operations Emissions

Operations Activity	ROG	NOx	CO	SO2	PM_{10} Total	$PM_{2.5}$ Total
	Maximum Daily Emissions (lb/day)					
Normal Operations	0.03	0.02	0.24	0.0003	9.38	0.94
Panel Washing	0.14	1.61	0.84	0.004	23.48	2.38
Project Total	**0.17**	**1.64**	**1.08**	**0.005**	**32.86**	**3.32**
ICAPCD Thresholds	137	137	550	150	150	550
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

The Draft EIR will be revised to include Table 0.2-2 and Table 0.2-3. While the additional modeling will be included in the Final EIR, this information is not significant because it does not demonstrate that a new significant impact would result from the project or that there is a substantial increase in the severity of an environmental impact. This addition to the Draft EIR merely amplifies the County's determination that potential air quality impacts from the Project will be less than significant. Therefore, there is no need to recirculate the Draft EIR in response to this comment.

F.33 The comment states that Draft EIR "completely fails to grapple with or provide any quantification of air emissions from decommissioning of the Project "after its 20-to 25-year lifespan", and states that a quantitative estimation could have been made and emissions from those activities associated with decommissioning evaluated as part of the Draft EIR's analysis of the Project's impacts to air quality.

First, it should be noted that the Draft EIR states that solar equipment in general, but not the Project specifically, has a 20 to 25 year lifespan. In fact, Section 3.3.4 of the Draft EIR recognizes that there is some ambiguity as to when the Project will be decommissioned— the Project may continue as a result of a contract extension, purchase from another buyer, the Project may continue through another means of funding, or the Project may be decommissioned. Thus, identifying specific decommissioning activities, and the potential impacts from those activities, would be speculative.

Second, notwithstanding the fact that the timing for decommissioning and scope of specific decommissioning activities are not known at this time, the Draft EIR did provide a good faith effort to describe and address the potential emissions from decommissioning and complete dismantling of the Project. Draft EIR page 2-16 describes expected activities from decommissioning and a complete dismantling of the Project, which includes removal of project components and reclamation and recontouring of the project site. Draft EIR page 3.3-22 examines the potential air quality impacts of these project activities, stating "The emissions from on- and off-road equipment during decommissioning are expected to be significantly lower than project construction emissions, as the overall activity would be anticipated to be lower than project construction activity." The commenter does not explain, or otherwise provide evidence, to rebut the expectation that overall activities from decommissioning will be lower than project deconstruction activity.

Third, based on the foregoing expectations with respect to decommissioning activity levels, it is reasonable for the County to compare the air quality modeling already conducted for construction to evaluate potential air quality impacts from decommissioning. Using both the air modeling conducted in support of the Draft EIR and that prepared in response to comments, the Project's maximum daily construction emissions (*see*, Draft EIR Table 3.3-8; response to comment F.32, Table 0.2-2) show that none of the construction phases would exceed ICAPCD significance thresholds. As stated above, decommissioning activities would be less intensive than construction given lower levels of overall activity. Even under the most conservative assumption that emissions from decommissioning are equivalent to construction, emissions from decommissioning activities would be less than ICAPCD's significance thresholds. Furthermore, any decommissioning activities will be required to implement fugitive dust measures in accordance with ICAPCD's requirements, and all Project activities are required to comply with Mitigation Measures AQ-1 through AQ-5. . Therefore, because the County made a good faith effort to disclose and analyze potentially significant impacts associated with decommissioning as part of the Draft EIR's analysis of the Project's potential impacts to air quality, there is no need to revise the Draft EIR in response to this comment.

F.34 This comment summarizes the commenter's opinions regarding decommissioning in Comment F.33, states that the Draft EIR underestimates emissions, and states that the Draft EIR's conclusion that air quality impacts are less than significant are not supported by substantial evidence. The comment also states that the Draft EIR should be revised to include an accurate and adequate air quality analysis.

As stated in response to comment F.33, the County presented a good faith analysis of potential air quality impacts from decommissioning and dismantling of the Project. The comment presents only the commenters opinion that the Draft EIR underestimates emissions, but does not present any evidence to support the conclusion. See also Comment F.33 above. Therefore, the Draft EIR does not need to be revised or recirculated in response to this comment.

F.35 This comment provides a calculation for construction-related PM10 emissions based on what the commenter characterizes as corrections of errors presented in the Draft EIR's modeling. As stated in response to comments F.25 through F.34, there were no errors in the Draft EIR's modeling, and all assumptions and inputs used in the model were based on reasonable projections of actual Project activities during construction and operations. The commenter derived an estimated construction PM10 emissions of 639.7735 pounds per day, which is an extremely high number. Notably, the commenter did not provide any emission modeling files, or any data to support their estimated construction PM10 level. The only reference to how the modeling was

conducted by SWAPE is a statement that construction-related mitigation measures and changes to the Project's anticipated hauling, vendor, and worker trip percent paved values were omitted. (SWAPE, p. 12.)

Neither Comment Letter F or Exhibit B to Comment Letter F provides the emission modeling files to substantiate the modeling results. Calculations were generated by the project applicant's environmental consultant in an attempt to determine how this high value was derived. The consultant determined that SWAPE did not include any mitigation measures for fugitive dust and used the default paved road percentages in CalEEMod, which are equivalent to 50 percent. With a paved road percentage of 50 percent, SWAPE estimated that 50 percent of both the worker and vendor trip lengths would be unpaved. These are not accurate assumptions for the Project, and are not consistent with the Project description. First, as explained in the Draft EIR and in response to comments F.31 and F.33, the ICAPCD requires that all construction sites in Imperial County incorporate standard fugitive dust control measures. In particular, Mitigation Measure AQ-2 in Section 3.3, Air Quality, specifically outlines mitigation measures for controlling fugitive dust from unpaved roads. Furthermore, as shown in Table 0.2-2 (see response to comment F.33), the assumption of a paved road percentage of 50 percent is not representative for this project. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.36 The comment provides a summary regarding diesel particular matter (DPM), and the potential health hazards of DPM. This comment does not raise any significant environmental issues and is noted for the record.

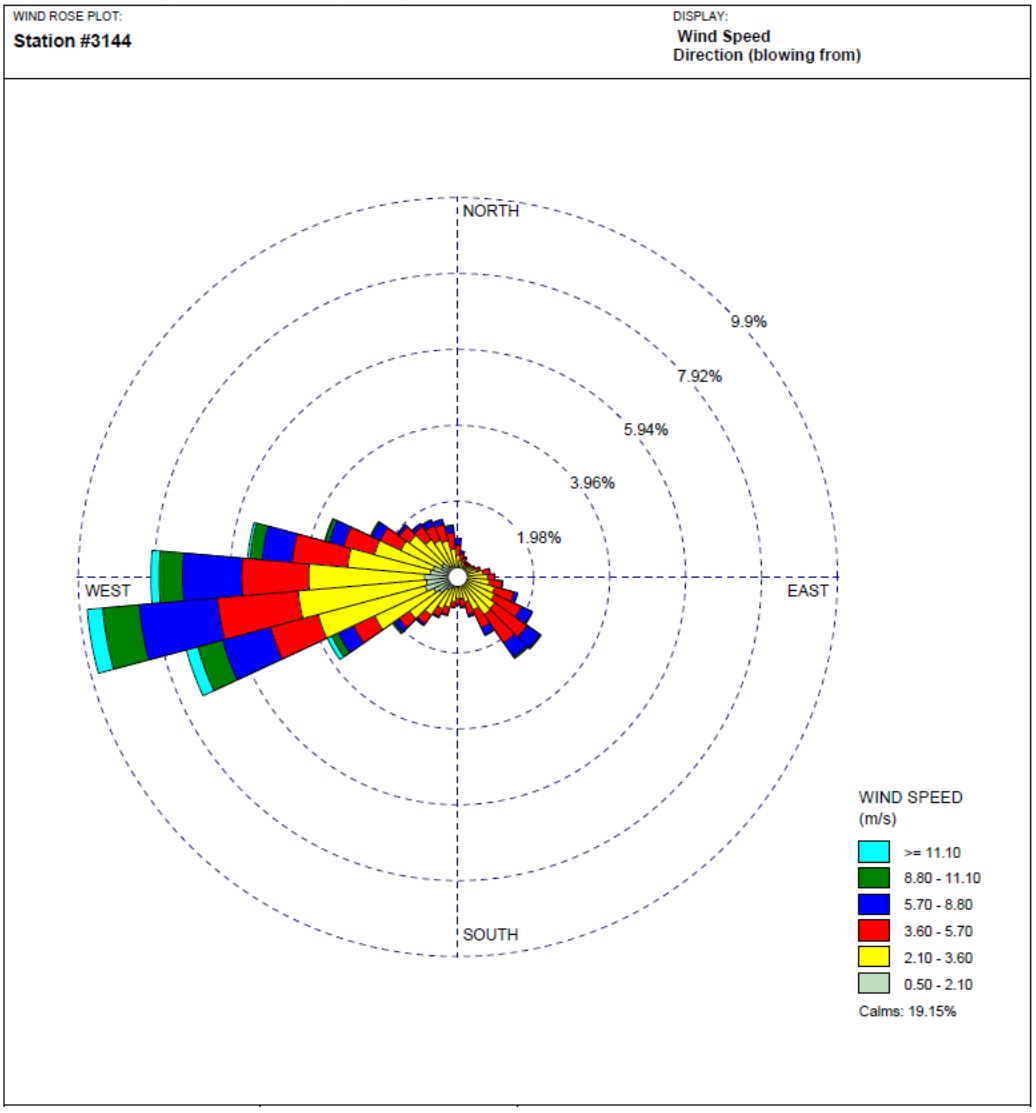
F.37 The comment states that the Draft EIR did not adequately evaluate adverse health impacts from exposure to TACs, and that the Draft EIR should have included a health risk assessment for exposure to toxic air contaminants (TACs), in particular diesel particulate matter (DPM), from construction and operational emissions to support its analysis. Potential health impacts from exposure to TACs were fully identified and considered in the Draft EIR, specifically on pages 3.3-13 through 3.3-22, and Appendix D, pages 20-21. The Draft EIR found that DPM emissions during construction would be short-term in nature, lasting a maximum of nine months. As stated on Draft EIR page 3.3-20, the Project's employees commuting to the site during project construction or operation would use gasoline-fueled vehicles, therefore, there would be no DPM emissions during operations, and emissions of DPM would cease after the Project is constructed because diesel fueled construction vehicles are not required for operation of the Project. Even though potential impacts are less than significant, Mitigation Measure AQ-1 (Draft EIR page 3.3-18) will be implemented for the Project, which requires that all off-road equipment meet EPA Tier 2 Final Standards or better, which would reduce DPM emissions.

Further, the County determined that a health risk assessment is not necessary given expected emissions levels from the Project and the Project's distance from sensitive receptors. In the absence of guidance from the ICAPCD for conducting health risk assessments, guidelines from the Bay Area Air Quality Management District (BAAQMD) for evaluating health risk impacts were consulted. BAAQMD's CEQA Guidelines state, "For assessing community risks and hazards, a 1,000-foot radius is recommended around the project property boundary. BAAQMD recommends that any proposed project that includes the siting of a new source or receptor assess associated impacts within 1,000 feet…" For this Project, the closest sensitive receptor is beyond 1,000 feet from the Project boundary; therefore, the County determined that a health risk assessment was not necessary to quantify cancer risks.

Furthermore, meteorological data from the closest meteorological station in Imperial County is located at the Imperial County Airport. Meteorological data from the site was obtained from the California Air Resources Board's pre-processed AERMOD files. Using AERMOD, a wind rose of the dominant wind direction was generated and is illustrated in Figure 1 Imperial County Airport Windrose below. As shown in Figure 1, the prevailing wind direction blows from east to west. The closest sensitive receptor is both located greater than 1,000 feet from the Project site and is located west of the project site. Therefore, the closest receptor is upwind of the project emissions, resulting minimal exposure to construction-related DPM emissions.

For the reasons stated above, the Project's qualitative evaluation of TAC exposure is sufficiently supported by substantial evidence, and the Draft EIR accurately concluded that health impacts would be less than significant. Therefore, there is no need to revise or recirculated the Draft EIR in response to this comment.

Figure 1. Imperial County Airport Wind Rose



F.38 The comment summarizes legal arguments regarding CEQA's requirements for an EIR, but does not raise significant environmental issues. The commenter cites *Berkeley Keep Jets Over the Bay Comm. V. Bd. of Port Comm'rs*, 91 Cal. App.4th 1344, 1369 ("*Berkeley Jets*") for the proposition that a health risk assessment is required when a project results in exposure to toxic contaminants. This is incorrect. In *Berkeley Jets*, the court stated a lead agency must "meaningfully attempt to quantify the amount of mobile-source emissions that would be emitted from normal operations conducted as part of [the project], and whether these emissions will result in any significant health impacts. The Draft EIR meets these requirements, and made a meaningful attempt to quantify the amount of emissions from the Project, including those from particulate matter from both fugitive dust and exhaust sources, and the potential health impacts from those emissions. (See, Appendix A, Air Quality and Greenhouse Gas Emissions", pdf pp. 44-45, to Draft EIR Appendix D, Air Quality Technical Study.) This comment is noted for the record.

F.39 The comment states that the Draft EIR should conduct a quantitative analysis of potential TAC impacts, and further states that a qualitative analysis of TAC impacts cannot support a finding that potential health risk impacts from the Project are less than significant. This is incorrect. The Draft EIR provides a thorough discussion of the potential types of pollutants that may result from the Project, including TACs and DPM. The potential health impacts of TACs and DPM, and the Project activities that may give rise to the emission of these pollutants, are discussed in both the Draft EIR and Appendix A, Section 2.3.3 to the Draft EIR. Response to comment F.37 discusses the Draft EIR's analysis of TACs, including the assumptions and guidelines that were followed to reach the conclusion that potential impacts are less than significant. There is no need to specifically quantify the minimal DPM emissions from the Project because overall emissions from construction, of which DPM is a subset, have already been quantified, and found to be lower than the thresholds of significance. Further, as discussed in response to comment F.37, the Project's qualitative evaluation of TAC exposure is sufficiently supported, and the Draft EIR accurately concluded that health impacts would be less than significant. No further analysis or mitigation is required. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.40 The comment reiterates earlier statements that the air modeling analysis conducted on behalf of the Project is flawed. Response to comments F.26 through F.35 explain the inputs and assumptions that were incorporated into the air quality modeling, and how those inputs and assumptions are reasonable and appropriate for this Project. Furthermore, DPM emissions during construction did not change with the refined modeling conducted in response to the above comments. The construction modeling was only updated to accurately represent fugitive PM_{10} emissions based on more refined inputs. All construction exhaust emissions, including DPM, were accounted accurately in both Appendix D and the refined air quality analysis, which demonstrates that the previous exhaust emissions were represented accurately.

It is also important to note that all mobile vehicles during construction and operations would be gasoline powered, and will not result in DPM emissions. For these reasons, the comment's claim that Draft EIR air modeling analysis is flawed and cannot be relied upon is incorrect. No further mitigation or discussion is required. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.41 The comment states that there is a receptor located 1,297 feet from the Project site. The County reviewed the figure presented by SWAPE, and determined that the receptor appears to be located approximately 1,297 feet from the gen-tie line, and over 1,500 feet from the location of the solar energy facility. The County will revise the Draft

EIR to state that there is a receptor located within 1,500 feet from the gen-tie line, and over 1,500 feet from the solar energy facility site. However, this revision does not affect the County's conclusions with respect to potential air quality impacts from the Project, as the receptor is located greater than 1,000 feet from the Project site boundary. As stated in response to comment F-37, health risk impacts should be evaluated for receptors within 1,000 feet of the Project site. Because the newly identified receptor is beyond the 1,000-foot radius and located upwind of the Project, health impacts would not be required to be evaluated at this receptor. This information does not show that a new significant environmental impact from the project would result, or that a substantial increase in the severity of an environmental impact would result; therefore, this additional information does not constitute the addition of significant new information. Therefore, there is no need to recirculate the Draft EIR in response to this comment.

F.42 The comment states that a less than significant finding for cancer risk is determined by a numeric threshold, and that ICAPCD's significance threshold is 10 in one million. The commenter does not cite to any law, ordinance, regulation, or standard to support the statement that a less than significant finding for this Project can only be determined by a numeric threshold.

Consistent with the ICAPCD's CEQA Guidelines, the County and the project applicant consulted with the ICAPCD regarding the air quality analysis for the Project. As discussed in response to comment F.37, the Project's qualitative evaluation of TAC exposure is sufficiently supported by substantial evidence, and the Draft EIR accurately concluded that health impacts would be less than significant. No further analysis or mitigation is required. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.43 The comment states that a quantified health risk assessment is required for the Project to be consistent with guidance from the Office of Environmental Health Hazard Assessment (OEHHA). This is incorrect. OEHHA's *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments* (Feb. 2015; hereinafter, "OEHHA Guidelines") specifically recognizes that it is within the purview of the Local Air Pollution Control District or Air Quality Management District to determine which facilities are required to prepare and HRA. (OEHHA Guidelines, p. 1-3.) As stated above in response to comment F.42, the County and the project applicant consulted with the ICAPCD regarding the air quality analysis for the Project. The ICAPCD did not state that an HRA was necessary for the air quality analysis.

The comment also states that without preparation of a health risk assessment, the Draft EIR's conclusions that impacts to public health are less than significant is unsupported. As discussed in response to comments F.37 through F.42, the County, concluded that a health risk assessment is not necessary for this Project. The Project's qualitative evaluation of TAC exposure appropriately discloses the potential environmental impacts from the Project, is supported by substantial evidence, and the Draft EIR accurately concluded that public health impacts would be less than significant. No further analysis or mitigation is required. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.44 The comment summarizes the commenter's opinion as to CEQA's requirements for the determination of a project's GHG emissions, and does not raise a significant environmental issues. Specific concerns related to the Draft EIR and Project are addressed in responses to comments F.45 through F.51. This comment is noted for the record.

F.45 The comment states the Draft EIR fails to adequately disclose, analyze, and mitigate GHG impacts from the Project's construction and operations. This comment also states that the Draft EIR fails to provide substantial evidence that the Project is consistent with goals, plans, and policies adopted for the purpose of reducing GHG emissions. These comments are incorrect.

With respect to specific goals, plans, and policies adopted for the purpose of reducing GHG emissions, Draft EIR section 3.7.2 discusses the federal, state, regional, and local laws, ordinances, regulations, and standards ("LORS") that contain goals, plans, and policies adopted for the purpose of reducing GHG emissions. Draft EIR Section 3.7.2 identifies the LORS applicable to consideration of this Project. Draft EIR page 3.7-14 presents Table 3.7-2, which discloses both construction and operational GHG emissions expected from the Project. The Draft EIR analyzed the potential impacts of these emissions, and determined that the Project would result in an overall reduction of 65,136 metric tons of carbon dioxide equivalents by having solar panels generate electricity from renewable sources. The Project's sole purpose to reduce GHG emissions from electricity generating facilities that emit carbon dioxide emissions from combustion of non-renewable fossil fuels, and Table 3.7-2 unequivocally shows that the Project would reduce a substantial amount of GHG emissions.

Draft EIR page 3.7-14 provides a discussion with respect to the Project's consistency with LORS relating to GHG emissions, including policies relating to achieving renewable portfolio standards, generation of electricity from renewable sources, and assisting with the achievement of cost-effective emissions while transitioning to a low-carbon economy. The Draft EIR concludes that the Project would not conflict with any applicable LORS, and in fact, would aid in the achievement of GHG emissions reduction goals and policies set forth in those LORS. Based on the foregoing, the Draft EIR appropriately concluded that the Project will have a less than significant impact on climate change from GHG emissions.

For these reasons, the Draft EIR adequately analyzed the Project's consistency with goals, plans, policies, or regulations for reducing greenhouse gases. No mitigation or further discussion is required. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.46 The comment repeats statements that the County must make a reasonable effort to conduct a complete and thorough GHG analysis to determine significant impacts, and incorporate mitigation measures to reduce GHG impacts to less than significant. As stated in response to comment F.45, the County conducted a thorough, good faith effort to analyze the potential impacts of GHG emissions from the Project. The Draft EIR's conclusion of less than significant impacts are accurate and supported by substantial evidence. CEQA does not require mitigation measures for effects which are not found to be significant. (14 C.C.R. § 15126.4(a)(3).) Therefore, no mitigation measures are required, and there is no need to revise or recirculate the Draft EIR in response to this comment.

F.47 The comment summarizes the commenter's opinion as to CEQA's requirements for the determination of the significance of a project's GHG emissions, and does not raise a significant environmental issues. As stated in response to comments F.45 through F.46 the Draft EIR adequately analyzed the Project's consistency with goals, plans, policies, or regulations for reducing greenhouse gases, and would result in a net reduction in annual GHG emissions. The Project would not exceed the 3,000 MTCO2e threshold and would also be consisted with policies for reducing GHG emissions. No mitigation or further discussion is required. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.48 The comment primarily summarizes the commenter's opinion as to CEQA's requirements for the determination of the significance of a project's GHG emissions and the, and does not raise a significant environmental issues. The comment does not provide any specifics in this comment as to how the Draft EIR fails to analyze climate change impacts. Specific concerns related to the Draft EIR and Project are addressed in subsequent comments. No further discussion is required.

F.49 The comment states that the Scoping Plan is outdated and does not apply to the Project. This is incorrect. The most recent version of the state's Scoping Plan is the 2017 Scoping Plan. As stated on Draft EIR page 3.7-8, "The majority of the Scoping Plan's GHG reduction strategies are directed at the two sectors with the largest GHG emissions contributions: transportation and electricity generation." The 2017 Scoping Plan builds upon the framework of strategies from previous versions. Also, the 2017 Scoping Plan specifically states how California will reach its 2030 reductions targets, therefore, the commenter's claim that "the Scoping Plan is only intended to provide emission reduction goals through 2020" is incorrect. The Draft EIR analyzed the potential impacts of GHG emissions, and determined that the Project would result in an overall reduction of 65,136 metric tons of carbon dioxide equivalents by having solar panels generate electricity from renewable sources. The Project's sole purpose to reduce GHG emissions from electricity generating facilities that emit GHG emissions from combustion of non-renewable fossil fuels, and Table 3.7-2 unequivocally shows that the Project would reduce a substantial amount of GHG emissions. The Draft EIR used the appropriate Scoping Plan that is applicable to the Project. No mitigation or further discussion is required. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.50 The comment states the Draft EIR lacks substantial evidence to demonstrate the Project's consistency with Scoping Plan polices. This is incorrect. As stated in response to comment F.45, the Draft EIR adequately analyzed the Project's consistency with goals, plans, policies, or regulations for reducing greenhouse gases, including the Scoping Plan policies. One of the main goals in the Scoping Plan is to reduce GHG emissions from electricity generation from fossil fuel combustion. It should be reiterated that the Project's sole purpose is to produce electricity from renewable energy sources, such as solar panels, and the Project would even result in a net reduction of GHG emissions. The Draft EIR provided substantial evidence to support the conclusions finding consistency with Scoping Plan policies and applicable LORS. No further mitigation or discussion is required. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.51 The comment summarizes comments F.47 through F.50, which are responses to above, and statements the Draft EIR must be revised and recirculated. Based on the preceding responses to comments F.44 to F.51, the Draft EIR accurately and sufficiently evaluated the Project's GHG impacts, and the Draft EIR's conclusion of less than significant GHG impacts is accurate and supported by substantial evidence. No further mitigation or discussion is required. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.52 The comment primarily summarizes the commenter's opinion as to CEQA's requirements regarding the discussion of potential hazards to the public from a project's routine transport, use, or disposal of hazardous materials, and the determination of potential hazards arising from a project's use of hazardous materials. Draft EIR Section 6.3 evaluates the potential health impact from hazardous materials and determines the impact to be less than significant. Additionally, as discussed in response to comment F.31, the fugitive dust mitigation measures in accordance with ICAPCD *Regulation VIII-Fugitive Dust Control Measures* will be implemented in response to environmental inhalation hazards such as Valley Fever. This comment does not raise significant environmental issues, and is noted for the record.

F.53 The comment make a general statement that the Cortese List is not a sufficient means to determine potential hazards at the Project site, and that without a Phase I ESA, there is no substantial evidence to support a finding that the Project will have a less than significant impact from hazards or hazardous materials. The comment cites to no legal authorities for this claim and the County is not aware of any such legal authority requiring the information set forth in the comment.

The Draft EIR based its conclusion that there would not be a significant hazard or hazardous materials impact from the Project on several factors, including the limited use of hazardous materials during construction and operations, distance of the Project site from an existing or proposed school, airports, and the fact that the Project site is not listed as a hazardous materials site. Furthermore, the project site is owned by the applicant, who is knowledgeable of the history of uses on the site. There have been no uses on the project site that involved the excessive use of hazardous materials, including transport or disposal. Therefore, no contamination on the site is expected and no impact related to hazardous materials is identified. The comment does not raise any concerns that the Project will create a significant hazard to the public or to the environment, or otherwise raise any significant environmental issues relating to hazardous materials. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.54 The comment states that the Draft EIR does not address the Project's potential impacts on public health from Valley Fever. Valley Fever is a disease caused by inhalation of spores from a fungus known as *Coccidioides* spp., "which lives in the top 2 to 12 inches of soil" in many parts of California. (See, CA Labor Code § 6709.) Contracting Valley Fever can occur by breathing in dust that contains spores of the fungus. (See, CA Department of Public Health, *Valley Fever Fact Sheet*.) Valley Fever is not highly endemic in Imperial County, (CA Labor Code § 6709; see also, CA Department of Public Health, *Coccidioidomycosis in California Provisional Monthly Report* (September 30, 2020), and there is no evidence that the fungus is present on the Project site. The Draft EIR discusses mitigation measures used to limit inhalation exposure to dust and to control fugitive dust on the Project site, which would therefore limit inhalation exposure to dust related toxins. The measures set forth in the comment are redundant to or duplicative of the measures discussed in the Draft EIR. As discussed in response to comment F-31, Draft EIR pages 3.3-17 and 3.3-18 clearly outline the mitigation measures that would be implemented. Mitigation Measure AQ-2 states that the Project would comply with the *Regulation VIII-Fugitive Dust Control Measures* and provides multiple measures to reduce fugitive dust emissions. The Draft EIR outlined fugitive dust control measures in Section 3.3, Air Quality, and in the modeling output file provided a comment that watering would occur two times per day which is related to the "Water Exposed Area" mitigation measure, thus the commenter's claim that mitigation measures are not substantiated or explained in the modeling output is inaccurate. Also, for the "Reduce Vehicle Speeds on Unpaved Roads" measure, Draft EIR page 3.3-18 clearly states vehicle speeds would not

exceed 15 miles per hour. The project will follow ICAPCD regulations for controlling fugitive dust and dust related inhalation toxins. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.55 The comment provides a background of a study examining the impact of Valley Fever on workers constructing two large, industrial-scale projects in San Luis Obispo County, and therefore has little applicability to Imperial County. The comment states that the generation of dust is one of the primary routes of exposure to contract Valley Fever. The comment also states that exposure to workers on or adjacent to the project site is larger, and that dust from the Project may carry spores into other areas. The comment states that the Draft EIR fails to adequately mitigate against significant health risk impacts from Valley Fever. As stated in response to comment F.54, Valley Fever is not highly endemic in Imperial County, unlike San Luis Obispo County, and there is no evidence that the fungus is present on the Project site.

The comment also proposes mitigation measures that the commenter states will mitigate against significant health risk impacts. First, the commenter proposes measures to minimize exposure to potential Valley Fever-containing dust, such as cleaning equipment and vehicles of dust, spraying areas to be graded with water, and ceasing work if water runs out until a water truck can return. These measures are already incorporated within the mitigation measures proposed by the County. Measure AQ-2 provides for the cleaning of equipment and vehicles, watering of exposed soil in active grading areas, in addition to many other measures to control dust. Measure AQ-3 requires dust suppression through either water or chemical stabilization, and Measure AQ-4 requires development and approval of a Dust Suppression Management Plan. As discussed in response to comments F.31 and F.54, the Draft EIR also includes other mitigation measures designed to control and limit dust from Project construction and operation. These measures will limit inhalation exposure to dust, including "Water Exposed Area" and "Reduce Vehicle Speeds on Unpaved Roads" (see EIR pages on page 3.3-17 and 3.3-18). The project will comply with all ICAPCD *Regulation VIII-Fugitive Dust Control Measures* during construction and operation. With the implementation of these measures set forth in the DEIR, potential impacts from the Project are less than significant, and the other measures proposed by the commenter (such as payment of a monetary fee for implementation of a Valley Fever public awareness program) are not necessary to mitigate potential impacts to less than significant. While not necessary to mitigate potential impacts to less than significant, the project applicant has also confirmed that the following measures would be included as part of its construction BMPs: conducting Valley Fever awareness training for workers; providing respirators to workers when requested, including necessary training; use of closed-cab earth-moving vehicles equipped with HEPA-filtered air systems; and conducting earth-moving activities downwind of workers when possible. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.56 The comment provides a list of mitigation measures that the commenter states should be adopted to mitigate significant health risk impacts from the Project. As noted in responses to comments F.31 and F.54, the Draft EIR discusses several mitigation measures that will be used to limit inhalation exposure to dust in accordance with ICAPCD regulations including *Regulation VIII-Fugitive Dust Control Measures* during construction and operation. With these mitigation measures in place exposure to dust related toxins would be less than significant. Further, as stated in response to Comment F.24, mitigation must have both a nexus and rough proportionality to the impact caused by the project. The Mitigation Measures identified in the Draft EIR are in proportion to potential effects. No additional mitigation would be required to reduce or lessen potentially significant impacts further than the mitigation measures already

proposed in the Draft EIR. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

F.57 The comment states that CEQA requires that the Draft EIR incorporate all mitigation measures proposed by SWAPE to address air quality, health risk, and GHG impacts from the Project prior to Project approval. To begin, CEQA requires the Draft EIR incorporate all feasible mitigation measures required to reduce potential effects to a level of less than significant, not all mitigation measures proposed by a commenter. Moreover, the provisions of the CEQA Guidelines cited by the commenter do not apply where, as here, that the Project will have less than significant impacts to air quality, public health, and climate change from GHG emissions. The Draft EIR has assessed and implemented all feasible mitigation measures necessary to reduce potential significant impacts to a less than significant level. In addition, several of the measures recommended by the commenter are already incorporated in the Draft EIR. For example, the Draft EIR includes emission control technology, idling requirements, and diesel requirements (see Draft EIR Mitigation Measure AQ-2). Further, as stated in response to comment F.23, mitigation must have both a nexus and rough proportionality to the impact caused by the project. The Mitigation Measures identified in the Draft EIR are in proportion to potential effects. No additional feasible mitigation would be required to reduce or lessen potentially significant impacts further than the mitigation measures already proposed in the Draft EIR. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

The County's response to each proposed measure is below:

- CRS Diesel Emission Control Technology measure a: See mitigation measure AQ-1, AQ-2, which will ensure that PM emissions are less than significant.
- CRS Diesel Emission Control Technology measure b: See mitigation measure AQ-1, AQ-2, which will ensure that PM emissions are less than significant.
- CRS Diesel Emission Control Technology measure c.i: See mitigation measure AQ-1, requiring all construction equipment to be equipped with an engine designation of EPA Tier 2 or better.
- CRS Diesel Emission Control Technology measure c.ii: See mitigation measure AQ-1, AQ-2, which will ensure that PM emissions are less than significant.
- CRS Diesel Emission Control Technology measure d: See AQ-1; compliance verification will be through the submittal of an equipment list to ICAPCD and the County rather than a sticker.
- CRS Diesel Emission Control Technology measure e: The County declines to adopt this measure, as AQ-1, which requires submittal of an equipment list to ICAPCD and the County, will be used to verify that equipment use does not exceed significance thresholds.
- CRS Diesel Emission Control Technology measure f: See mitigation measure AQ-2, requiring use of alternative fueled or catalyst equipped diesel construction equipment.
- CRS Idling Requirements measure: See mitigation measure AQ-2, providing for the minimization of idling time.
- CRS Additional Diesel Requirements measure a: See AQ-1 requiring submittal of an equipment list to ICAPCD and the County.
- CRS Additional Diesel Requirements measure b: See AQ-1, which establishes standards for all construction equipment to be used on-site.

- CRS Additional Diesel Requirements measure c: See AQ-1, which establishes standards for all construction equipment to be used on-site.

The commenter also provided a list of the Sacramento Metropolitan Air Quality Management District's ("SMAQMD") "Basic Construction Emission Control Practices". The County notes that the project is subject to ICAPCD's jurisdiction, and ICAPCD's rules relating to fugitive dust management and construction emission control practices. Nonetheless, the proposed measures are discussed below:

- Control of fugitive dust: See mitigation measure AQ-2, which provides for compliance with ICAPCD Regulation VIII-Fugitive Dust Control Measures.
- Watering of exposed surfaces: See mitigation measure AQ-2, providing for, among other measures, watering of exposed surfaces with adequate frequency to control dust.
- Haul truck measures: See mitigation measure AQ-2, which addresses the transport of bulk materials.
- Removal of visible track-out mud or dirt: See mitigation measure AQ-2, requiring the immediate cleaning, or once per day cleaning, of track-out mud or dirt.
- Limit of vehicle speeds on unpaved roads to 15 miles per hour: See mitigation measure AQ-2, limiting vehicle speeds for construction vehicles to 15 miles per hour on any unpaved surface at the construction site.
- Requiring all roadways, driveways, sidewalks, and parking lots to be paved as soon as possible: See mitigation measure AQ-2, which requires all on-site and offsite unpaved roads and traffic areas to be effectively stabilized, either through paving, chemical stabilizers, dust suppressants, and/or watering. The County declines to adopt the commenter's suggestion to limit the method of stabilization solely to paving.
- Minimize idling time: See AQ-2, which contains identical measures to minimize idling time.
- Provide current certificate of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets regulations: See AQ-1, which provides for verification by the ICAPCD of construction equipment compliance with AQ-1. The County declines to adopt the commenter's specific measure to verify compliance.

The commenter also provided a list of the SMAQMD's "Enhanced Exhaust Control Practices". SMAQMD recommends consideration of these measures, if feasible, for projects that will generate maximum daily NOx emissions that exceed SMAQMD's threshold of significance. The County again notes that the project is subject to the ICAPCD's regulatory authority, and the ICAPCD has different thresholds of significance for emissions. Nonetheless, even if the project were subject to SMAQMD's permitting authority, it would not exceed SMAQMD's thresholds of significance and trigger consideration of SMAQMD's Enhanced Exhaust Control Practices. As stated in the DEIR and above in response to comments F.31 through F.37, emissions impacts from the project are less than significant. Further, as described above, several of the mitigation measures proposed by the commenter have already been incorporated in the Draft EIR, in addition to other mitigation measures. The County is declining to adopt two of the mitigation measures proposed by the commenter: submission of a plan for emissions reductions from heavy-duty off-road vehicles and visual opacity restriction requirement for off-road diesel powered equipment. Emissions from the project are already less than significant; therefore, further measures to reduce emissions from the project are not necessary.

F.58 The comment summarizes previous comments stating states that the Draft EIR fails as an informational document and lacks substantial evidence to support its analysis and conclusions. As discussed in all previous responses the Draft EIR are supported by substantial evidence and are accurate. No further discussion is needed. Therefore, there is no need to revise or recirculate the Draft EIR in response to this comment.

[Responses to Comment Letter F, Exhibit A: Letter from Shawn Smallwood, Re: Wister Solar Energy Facility EIR]

F.59 The qualifications of Mr. Smallwood are noted.

F. 60 The commenter notes that Stantec conducted a single site visit on January 30, 2019 and that the surveys were described as non-protocol and that a protocol survey for flat tailed horned lizard was conducted in August 2019. The commenter also notes that no protocol surveys were performed for desert tortoise or burrowing owl. The commenter's concerns are addressed in response to comments E. 2, F.10, F.21 and F.24.a. Mr. Smallwood's methodologies and predictions are acknowledged but not affirmed. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.61 The commenter presents a list of species that they felt have potential to occur in the project area. Species relevant to the project's location were discussed within the context of the EIR in Sections 3.4.1, 3.4.3, Appendix A, Appendix E, and Appendix F. The commenter's concerns are also addressed in response to comments F.10-18, and F.21-23.

F.62 The comment is a continuation of comment 60 and are related to purported lake effect and collision, as they pertain to special-status species, at solar facilities. The commenter also describes his review of certain records about species reporting and monitoring and includes the commenter's assumptions and calculations derived from those materials, and states that the Draft EIR should have included a similar review of such records. However, no laws, ordinances, regulations or standards requiring the review conducted by the commenter are cited. In particular, "CEQA does not require a lead agency to conduct every recommended test and perform all recommended research to evaluate the impacts of a proposed project. The fact that additional studies might be helpful does not mean that they are required." Ass'n of Irritated Residents v. Cty. of Madera, (2003) 107 Cal. App. 4th 1383, 1396, 133 Cal. Rptr. 2d 718. In this case, reviewing fatality monitoring reports for California solar projects is not necessary where, as here, the Draft EIR appropriately included species occurrence data relevant to the Project site, which appropriately discloses the potential impacts arising from this Project. To the extent they discuss subject matters which may be relevant, the comments are noted, and are addressed in the Section 3.4.3, and Mitigation Measures BIO-2 and BIO-8. Mr. Smallwood's methodologies and predictions are acknowledged but not affirmed. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.63 The commenter makes certain predictions with respect to potential collision fatality rates from the project. The commenter also includes photographs from other projects, but does not explain their relevance to the potential effects of the proposed project. No laws, ordinances, regulations or standards requiring the review conducted by the commenter are cited. As stated above, "CEQA does not require a lead agency to conduct every recommended test and perform all recommended research to evaluate the impacts of a proposed project. The fact that additional studies might be helpful does not mean that they are required." Ass'n of Irritated Residents v. Cty. of Madera, (2003) 107 Cal. App. 4th 1383, 1396, 133 Cal. Rptr. 2d 718. . To the extent they discuss subject maters which may be relevant, the comments are noted and addressed in the response to comments F.10 and F.16. Mr. Smallwood's methodologies and predictions are acknowledged but not affirmed. Otherwise, the

comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.64 The commenter summarizes his comments for a different project. To the extent they discuss subject maters which may be relevant to this Project, the comments are noted and addressed in the No. F.10 and F.16 above. Mr. Smallwood's methodologies and predictions are acknowledged but not affirmed. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F. 65 The comments regarding the commenters views on the potential for habitat loss are noted. To the extent they discuss subject maters which may be relevant to this Project, the comments are noted and addressed in the responses to comments E.2, E.2.c, F.17, F.19, and F.22. Mr. Smallwood's methodologies and predictions are acknowledged but not affirmed. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.66 The commenter discusses his comments in another proceeding unrelated to the project, the Desert Renewable Energy Conservation Plan (DRECP). Comments in this desert-wide policy proceeding do not address any potential effects of the project. The comment also discusses avian issues applicable to the entirety of Imperial County, and not specific the proposed project. To the extent they discuss subject maters which may be relevant, the comments are noted and addressed in the responses to Comments E.2, E.2.c, F.17, F.19, and F.22. Mr. Smallwood's methodologies and predictions are acknowledged but not affirmed. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.67 The comment focuses on wildlife movement. The project's potential effect on wildlife movement are addressed in the Draft EIR and in response to comments E.2.a, and F.18. The commenter discusses habitat conservation plans and the Desert Renewable Energy Conservation Plan (DRECP). Comments in this desert-wide policy proceeding do not address any potential effects of the project. Further, Section 3.4.3 includes a discussion of Impact 3.4-4, the potential impacts on the movement of any native resident or migratory fish and wildlife species or with established native resident or migratory wildlife corridors, and finds that impact to be less than significant. The comment is noted. The commenter's concerns are addressed in response to comments E.2.a, and F.18.

F.68 The commenter claims that the Draft EIR does not adequately address the cumulative impact of collision fatalities and loss of breeding capacity due to habitat loss. Chapter 5 of the Draft EIR, titled, "Cumulative Impacts," discusses the impact of the proposed project in conjunction with other planned and future development in the surrounding areas. Moreover, the commenter's concerns are further addressed in response to comments E.2, E.2.c, F.17, F.19, and F.22.

F.69 The commenter claims that the pre-construction mitigation measures included in the Draft EIR are not sufficient and what should be included are detection surveys. This comment largely restates prior comments. The commenter's concerns are addressed in response to comment F.21 above and to Mitigation Measures BIO-1, BIO-4, BIO-6, BIO-7, and BIO-9 in the Draft EIR which include targeted species surveys including surveys following CDFW and USFWS guidelines and protocols.

F.70 The commenter concurs with Mitigation Measure BIO-2. The commenter then states that Mitigation Measures BIO-2 should also address potential avian collisions or habitat loss. This is incorrect. The commenter's concerns are addressed in response to comments E.2, E.2.c, F.17, F.19, and F.22.

F.71 The commenter concurs with Mitigation Measures BIO-3 and BIO-5. The commenter then states that Mitigation Measures BIO-3 and BIO-5 should also address potential avian collisions or habitat loss. The commenters concerns are addressed in Section 3.4.3 of the Draft EIR and response to comment No. F.22.

F.72 The commenter claims that mitigation measure BIO-8 is inadequate because it would defer the development of the Bird and Bat Conservation Strategy (BBCS) until after the Project is approved. This is incorrect. BIO-8 provides that "The BBCS will include the following components" and presents a detailed listing of those components. BIO-8 states that BBCS "shall be developed" and "will include" the specified measures. It does not defer identification of the measures as the measures are included in the text of Mitigation Measure BIO-8. Moreover, the commenter's concerns are addressed in response to comments F.22, F. 23, F.24.b, F.24.e, and F.24.f. above. Mr. Smallwood's methodologies and predictions are acknowledged but not affirmed. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

F.73 The commenter states that eight identified mitigation measures that are not in Draft EIR should be considered and implemented by the County. However, the commenter does not identify with any specificity what potentially significant impacts are claimed by the commenter and how the commenter's list would avoid or minimize potentially significant effects of the project, as required by CEQA. (Public Resources Code § 21084.3; 14 C.C.R. 15021 and 15370.) The commenter's concerns are addressed in the Mitigation Measures set forth in Table ES-1 of the Draft EIR and response to comment F.24 above. Comments about the need for "County-wide" actions are not comments on the project or the Draft EIR. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary. Mr. Smallwood's methodologies and predictions are acknowledged but not affirmed. Otherwise, the comment does not provide any specific comments or concerns regarding the environmental setting in the Draft EIR; therefore, no further response is necessary.

[Responses to Comment Letter F, Exhibit B: Letter from SWAPE, Re: Comments on Wister Solar Energy Facility Project (SCH No. 2019110140)]

F.74 This comment contains an introductory paragraph regarding the Project description and summarizes SWAPE's conclusions regarding its review of the Draft EIR. Issues raised in the comment relating to the Draft EIR's hazards and hazardous materials, air quality, health risk, and greenhouse gas impacts analyses are addressed above in response to comments F.25 through F.58.

This comment states that use of the Cortese List is insufficient to disclose potential impacts of the Project. The comment also summarizes the EPA's Phase I and Phase II ESA processes. This comment does not raise an environmental concern

The comment asserts that a Phase I Environmental Site Assessment (ESA) is necessary because there is a geothermal well on the Project site, and that the well should be inspected

F.75 The comment contains background regarding Valley Fever and states that the Draft EIR should be revised to address potential impacts from Valley Fever due to construction and include mitigation measures to address potential impacts. This comment is addressed in response to comments F.52 and F.54 through F.57.

F.76 The comment provides a background on the CalEEMod software, and provides a summary of SWAPE's opinion that input used in the CalEEMod analysis were not consistent with the Draft EIR, and SWAPE's opinion that Project construction and operations emissions are underestimated. This comment is addressed in response to comments F.25 through F.35,

F.77 The comment provides a summary of the Project design and the inputs used in CalEEMod. The comment states that the PV panels and substation are land uses that should have been modeled in CalEEMod. The comment also discusses the operational vehicle fleet mix percentage values used in the air quality modeling, and states that the modifications were not justified. These comments are addressed in response to comments F.26 through F.28.

F.78 The comment states that the air analysis conducted for the Project underestimated operational vehicle trips, and should have modeled 14 daily one-way trips. The comment also states that model adjusted the Project's anticipated operational vehicle trip lengths and trip purposes (specifically, the change to the Residential Home-to-Work Trip Purpose Percentage) inputs without justification. The comment discusses changes to inputs relating to the Project's construction and operational paved roads percentages, and states that no justification was provided for the changes. Finally, the comment discusses the inclusion of construction related mitigation measures in the CalEEMod inputs, and states that this may have resulted in the underestimation of construction-related emissions. These comments are addressed in response to comments F.29 through F.30.

F.79 The comment states that inputs relating to unpaved road vehicle speed and unpaved road moisture content was changed without justification. This comment is addressed in response to comment F.31.

F.80 The comment states that the Draft EIR failed to, but should, consider the Project's emissions associated with decommissioning of the Project, and compare those emissions to applicable thresholds. The comment also states that the Draft EIR failed

to evaluate emissions from the fiberoptic cable and gen-tie line. These comments are addressed in response to comments F.33 through F.34.

F.81 The comment presents the results of an air quality model run by SWAPE, using SWAPE's assumptions and inputs. Based on SWAPE's modeling, SWAPE concludes that the Project would result in a potentially significant air quality impact. The comment states that the Draft EIR should be recirculated with the results of an updated air emissions model and mitigation measures to reduce emissions to less than significant levels. The comment states that a health risk assessment is necessary to evaluate potential health risk impacts from diesel particulate matter, and that there is a receptor located 1,297 feet west of the Project site. This comment is addressed in response to comments F.35 through F.43.

F.82 The comment provides a summary of the Draft EIR's conclusions that greenhouse gas impacts from the Project will be less than significant based on the GHG emissions and offsets from the Project and the Project's consistency with CARB's Scoping Plan. The comment states that the Draft EIR's conclusions are unsupported, and that further analysis of GHG impacts is needed. This comment is addressed in response to comments F.44 through F.51.

F.83 The comment identifies mitigation measures that SWAPE believes are applicable to the Project, and that should be incorporated into the Project. The comment states that the Draft EIR should be updated to incorporate all feasible mitigation measures, in addition to an updated air quality and HG analysis. These comments are addressed in response to comment 57.

The comment also provides a summary regarding the scope of services rendered by SWAPE, and states that the report may contain information gaps, inconsistencies, or may be incomplete. This comment does not raise a significant environmental concern, and is noted for the record.

From: Vargas, Donald A <DVargas@IID.com>
Sent: Thursday, October 8, 2020 5:07 PM
To: Patricia Valenzuela <PatriciaValenzuela@co.imperial.ca.us>; ICPDSCommentLetters <ICPDSCommentLetters@co.imperial.ca.us>
Cc: Arias, Lucy <laarias@IID.com>; Alfaro, Carlos <calfaro@IID.com>; Bergmark, Constance <cjbergmark@IID.com>; MacDonald, Matthew S <MSMacDonald@IID.com>; Martinez, Jesus <jamartinez@IID.com>; Ontiveros, Guadalupe A <GAOntiveros@IID.com>; Ornelas, Alfredo M <amornelas@IID.com>; Pacheco, Ezequiel <epacheco@IID.com>; Torres, Ricardo M <rmtorres@IID.com>; Kemp, Michael <MPKemp@IID.com>; Blain, Sandra <sblain@IID.com>; Gilbert, Marilyn <mgilbert@IID.com>; Martinez, Enrique B <ebmartinez@IID.com>; Ortega, Antonio <AOrtega@IID.com>; Pacheco, Mike <MAPacheco@IID.com>; Najera, Raquel <rnajera@IID.com>; Asbury, Jamie <jlasbury@IID.com>; Smith Hoff, Joanna <jshoff@IID.com>; Taylor, Vance <vmtaylor@IID.com>; Cervantes, Laura <ljcervantes@IID.com>; Gallinat, Lisa M <LMGallinat@IID.com>; Gray, Randy <RSGray@IID.com>; Pacheco, Jorge <jpacheco@IID.com>; Solorio, Sandra <SSolorio@IID.com>; Doyle, Vickie L <VLDoyle@IID.com>; Fiorenza, Frank J <FJFiorenza@IID.com>; Humes, Jessica <jllhumes@IID.com>; Gomez, Ismael <IGomez@IID.com>; Bergmark, Constance <cjbergmark@IID.com>
Subject: NOA of a DEIR for the Wister Solar Energy Facility Project (Additional Comments)

CAUTION: This email originated outside our organization; please use caution.

Good afternoon Patricia,

Pursuant to the district's comment letter on the Notice of Availability of a Draft Environmental Impact Report for the Wister Solar Energy Facility Project, dated August 18, 2020 (see attached), please be advised that with respect to the communication facilities described in comment no. 2 of the aforementioned letter, upon further assessment, albeit preliminary, it was determined that: G.1

1. The height of the communication tower will be less than 40-feet. The communication tower will be constructed using an auger truck and lift truck. The tower will be freestanding monopole without guy wire supports.
2. The communication tower will be located in the southwest portion of the project site, within the proposed Wister Substation.
3. The communication shelter would not be needed; rather the required communications equipment will be located within the substation control building. G.2

Regards,

Imperial Irrigation District
333 E. Barioni Blvd.
Imperial CA 92251

IID
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August 18, 2020

Ms. Patricia Valenzuela
Planner IV
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: NOA of a DEIR for the Wister Solar Energy Facility Project

Dear Ms. Valenzuela:

On June 30, 2020, the Imperial Irrigation District received from the Imperial County Planning & Development Services Dept. a request for agency comments on the Notice of Availability of a Draft Environmental Impact Report for the Wister Solar Energy Facility Project. The applicant, Orni 21, LLC, is proposing to develop a 20MW photovoltaic energy generation facility on a 100 acres of a 640-acre parcel generally located about 3 miles north of the townsite of Niland, California (APN 003-240-001-000) and plans to interconnect to the IID's 92kV "K" transmission line

G.3

The IID has reviewed the DEIR and, in addition to the comments submitted in the district letter dated December 10, 2019 (see attached letter), has the following observations:

1. In addition to the requirements for permanent station service, as stipulated in the December 10, 2019 IID letter, since a generator is being planned, the applicant will need to adhere to Regulation 21 (available for download at the district website https://www.iid.com/home/showdocument?id=2561) and provide the IID with the generator and transfer switch specifications, including the generator implementation plan during normal conditions, emergency conditions and back-to-normal conditions.

G.4

2. For inclusion as part of the project description: IID will be installing a wireless communication system at the proposed solar facility, as the originally planned fiber optic communication is not a viable option. Specifics on the communication tower height have not been determined at this point, the exact height will be ascertained once the path calculation and path survey are completed; however, preliminary studies identify a possible need for a 60-foot tower. Part of the wireless communication system will include a communication shelter 8'x10'x10' exterior dimensions.

G.5

IMPERIAL IRRIGATION DISTRICT · P.O. BOX 937 · IMPERIAL, CA 92251

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter. G.6

Respectfully,

Donald Vargas
Compliance Administrator II

Attachment

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept.
Marilyn Del Bosque Gilbert – Manager, Energy Dept.
Sandra Blain – Deputy Manager, Energy Dept.,
Constance Bergmark – Mgr. of Planning & Eng./Chief Elec. Engineer, Energy Dept.
Jamie Asbury – Asst. General Counsel
Vance Taylor – Asst. General Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes. – Supervisor, Real Estate
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.

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December 10, 2019

Ms. Patricia Valenzuela
Planner IV
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: NOP of a Draft EIR for the Orni 21, LLC Wister Solar Energy Facility Project

Dear Ms. Valenzuela:

On November 12, 2019, the Imperial Irrigation District received from the Imperial County Planning & Development Services Dept. a request for agency comments on the Notice of Preparation of a Draft Environmental Impact Report for the Wister Solar Energy Facility Project. The applicant, Orni 21, LLC, is proposing to develop a 20MW photovoltaic energy generation facility on a 100 acres of a 640-acre parcel generally located about 3 miles north of the townsite of Niland, California.

The Imperial Irrigation District has reviewed the information and has the following comments:

1. The project plans to interconnect to the IID's 92kV "K" transmission line via a generation tie-in line along the east portion of parcel APN 003-240-001 on approximately 100 acres of the 640 acres parcel. To serve the project's temporary construction and permanent power requirements for the project's substation, there may be a need to under build the 92kV gen-tie with 12kV rated conductor.

2. For distribution-rated electrical service for the project, the applicant should be advised to contact Ignacio Romo, IID Customer Project Development Planner, at (760) 482-3426 or e-mail Mr. Romo at igromo@iid.com to initiate the customer service application process. In addition to submitting a formal application (available for download at the district website http://www.iid.com/home/showdocument?id=12923), the applicant will be required to submit a complete set of approved plans (including CAD files), project schedule, estimated in-service date, one-line diagram of facility, electrical loads, panel size, voltage, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of temporary and permanent electrical service to the project. The applicant shall be responsible for all costs and mitigation measures related to providing electrical service to the project.

3. Please note electrical capacity in the area is limited and a circuit study will be required to determine the project's impact to the distribution system. If the study determines any distribution system upgrades are needed to serve the project, the applicant shall be financially responsible for those upgrades.

G.7

IMPERIAL IRRIGATION DISTRICT · PO BOX 937 · IMPERIAL, CA 92251

4. Developer should be advised that for specific technical concerns regarding the interconnection to IID's 92kV "K" transmission line to contact Carlos Alfaro, IID Transmission Engineering Supervisor at (760) 482-3483 or e-mail Mr. Alfaro at calfaro@iid.com.

5. IID water facilities that may be impacted include the East Highland Canal. The project site is located adjacent to and east of the East Highline Canal.

6. The applicant may not use IID's canal or drain banks to access the project site. Any abandonment of easements or facilities will be approved by IID based on systems (irrigation, drainage, power, etc.) needs.

7. The proposed project is located outside of IID's water service area and will be unable to receive IID water service. According to the terms of IID's 1932 federal water contract, only lands that are within the All-American Canal Service Area Boundary that have been included within the legal boundary of IID are eligible to receive water. Lands outside of the AAC Service Area Boundary or outside of the district boundary, may receive water from IID only if IID agrees to sell conserved water pursuant to a water conservation and transfer agreement. While these supplies are subject to even more constraints and approvals under the terms of the Quantification Settlement Agreement and various other related contracts, IID's Board of Directors is on record as indicating they are not in favor of any additional or new water transfers, which in and of themselves are complicated and tied to other existing contractual obligations. IID's water service area maps are available at https://www.iid.com/water/about-iid-water/water-service-maps. While all specific project inquiries should be directed to IID, these referenced maps may serve as a quick guide

G.7, cont.

8. Any construction or operation on IID property or within its existing and proposed right of way or easements including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities; will require an encroachment permit, or encroachment agreement (depending on the circumstances). A copy of the IID encroachment permit application and instructions are available for download at http://www.iid.com/departments/real-estate. The IID Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements.

9. An IID encroachment permit will be required to utilize existing surface-water drainpipe connections to drains and receive drainage service from IID. Surface-water drainpipe connections are to be modified in accordance with IID standards. A construction storm-water permit and an industrial storm water permit from the California Regional Water Quality Control Board are required for the construction and operation of the proposed facility. Copies of these permits and the project's Storm Water Pollution Prevention Plan are to be submitted to IID.

10. In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of

IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities.

11. Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully analyzed. **Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent.**

G.7, cont.

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Compliance Administrator II

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept.
Marilyn Del Bosque Gilbert – Manager, Energy Dept.
Jamie Asbury – Deputy Manager, Energy Dept., Operations
Enrique De Leon – Asst. Mgr., Energy Dept., Distr., Planning, Eng & Customer Service
Vance Taylor – Asst. General Counsel
Robert Laurie – Asst. General Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes. – Supervisor, Real Estate
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.

Letter G

Imperial Irrigation District

October 8, 2020

August 18, 2020

G.1 The comment is an introductory comment that provides an update to the comment letter of Imperial Irrigation District (IID) on the Notice of Availability of a Draft Environmental Impact Report for the Wister Solar Energy Facility Project, dated August 18, 2020 (comments G.3 through G.6). The District advises that with respect to the communication facilities described in Comment G.5 of the District's August 18, 2020, comment letter, IID has made certain further preliminary determinations with respect to the project description discussed in Comment G.2. This comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

G.2 The comment describes IID's updated preliminary design for a communications tower that IID will install at the Project site and is an update to Comment G.5. The comment states that the communication tower is expected to be less than 40-feet tall, will be constructed using an auger truck and lift truck for the freestanding monopole without guy wire supports, and will be located in the southwest portion of the project site within the proposed Wister Substation. The comment states that the communications shelter described in Comment G.5 will not be needed as communications equipment will be located within the substation control building. IID's comments related to communication towers are noted.

A communication tower as described in this comment is an allowed use with the CUP application. (RE Overlay Zone, Title 9, Division 17: Renewable Energy Resources § 90519.02.) Communications towers up to 100 feet tall are allowed in the underlying S-2 Zone. (RE Overlay Zone, Title 9, Division 17: Renewable Energy Resources § 90519.07). There are no applicable height limitations in the RE Overlay Zone. (Title 9. Division 17.)

California law provides IID with authority to install communications towers and other related facilities necessary to fulfilling the District's statutory authorities and obligations. California Water Code § 22225 provides that "each district has the power generally to perform all acts necessary to carry out fully the provisions of this division." As state agencies, irrigation districts may serve as the CEQA lead agency for certain projects in their service territory. (Pub. Res. Code § 21081.1.) An irrigation district is authorized to site, construct, own and operate electric generation, transmission and related facilities necessary for the district's operations. For electric service, a district may "do all necessary and proper acts for the construction and operation of its electric power works." (Cal. Water Code §§ 22118 and 20530.)

California Government Code Section 53091(d) states, "Building ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, wastewater, or electrical energy by a local agency." California Government Code Section 53091(e) provides zoning ordinances "shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, or for the production or generation of electrical energy, facilities that are subject to [CPUC regulation per] Section 12808.5 of the Public Utilities Code, or electrical substations in an electrical transmission system that receives electricity at less than 100,000 volts." As a facility necessary for fulfillment of an irrigation district's statutory authorities, both

the fiber optic line and the communications tower options standing alone would be exempt from local permitting. However, consistent with consideration of the whole of an action in a single environmental document (Pub. Resources Code § 21065; 14 C.C.R. § 15378) and consistent with the County's policies and its cooperative relationship with IID, the fiber optic cable and communications tower options are both analyzed and included in the Final EIR. Otherwise, this comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

G.3 This comment is an introductory comment and does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

G.4 This comment states that IID's rules and regulations require stations service and compliance with IID Regulation 21 requiring the installation of certain interconnection equipment. This comment does not raise a specific issues related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

G.5 This comment states IID's preference for the installation of a wireless communications system rather than fiber optic communications. The fiber optic cable is described as not a viable option from IID's perspective and states that specifics on the communication tower have not been determined at this point and are subject to a path calculation, path survey, and an onsite communications shelter. The comment acknowledges the IID process that will follow the County's certification of the EIR and approval of the project. This comment is supplemented by, and in some cases updates, the additional comments of IID received by the County on October 8, 2020. See responses to comments G.1-G.2. Otherwise, this comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

G.6 The contact information for IID is received and acknowledged.

G.7 This comment provides a courtesy copy of IID's comments on the Notice of Preparation of the Draft EIR. This comment does not raise a specific issue related to the adequacy of the Draft EIR; therefore, no further response is required, and the comment is noted for the record.

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Phone: (442) 265-3020

May 27, 2020

To: Imperial County Planning and Development Service

From: Imperial County Fire Prevention Bureau

Subject: Draft Environmental Impact Report for Wister Solar Energy Facility Project

The Imperial County Fire Prevention Bureau would like to thank you for allowing our comments on this project. The following is a list of our general requirements

O&M Buildings:
The type of suppression systems that will be used for the O&M Building must be described in the project; also, the hours and amount of staffing that will be used. In addition, include a description of your emergency and hazardous materials plan. Provide the square footage of all supporting structures to determine if the buildings will require sprinkler systems. H.1

Road Access and Array Requirements:
Dimensions: Alley roads shall have an unobstructed width of not less than 20 feet (6096 mm), except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm). The width in-between arrays shall be a minimum of 9 feet (2704mm). The width between arrays shall not be less than 10 feet (3048mm). Any array that exceeds a distance in length of 500 feet shall provide a turn around. H.2

Turning radius: The required turning radius of a fire apparatus access road shall be a minimum of 70 by 90 degrees diameter

Access and loading: Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road with an asphalt, all weathered, concrete, or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds (34 050 kg).
Fire apparatus access road gates: Gates securing the fire apparatus access roads shall comply with all of the following criteria: H.3

1. The minimum gate width shall be 20 feet (6096 mm).

2. Gates shall be of the swinging or sliding type.

3. Construction of gates shall be of materials that allow manual operation by one person.

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4. Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.

5. Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. Emergency opening devices shall be approved by the fire code official.

6. Locking device specifications shall be submitted for approval by the fire code official

7. Any gates on-site shall have a "Knox" lock and be rapidly accessible by the Imperial County Fire Department/OES

H.3, cont.

Water Requirement:

1) Provide a 10,000 gallon water storage tank dedicated for fire suppression for any proposed O&M structures.
2) Provide a 10,000 gallon water storage tank dedicated for fire suppression before any combustible material is moved on site for during construction.

H.4

Fiscal Impacts:

For operation and maintenance fees associated with Fire Department/OES

(a) Permittee shall pay a fee of $50 per acre per year prior to commencement of the construction period to address the Imperial County Fire/OES expenses for service calls within the project Utility/Transmission area. Said amount shall be prorated on a monthly basis for periods of time less than a full year. Permittee shall provide advance, written notice to County Executive Office of the construction schedule and all revisions thereto.

Permittee shall pay an annual fee of $20 per acre per year during the post-construction, operational phase of the project to address the Imperial County Fire/OES expenses for service calls within the Project Utility/Transmission area. Said fee will be paid to the Fire Department to cover on-going maintenance and operations cost created by the project.

H.5

(b) Cost associated with items two above items shall annually adjusted on January 1st to add a CPI (Los Angeles) increase. Such costs associated with these items can be readjusted in the

H.6

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County's sole discretion if a new service analysis is prepared and that service analysis is approved by both the County and the Permittee. H.6, cont.

Fire- In lieu of providing all-weather access roads for fire protection vehicles, the permittee shall be permitted to provide compacted dirt roads (in compliance with ICAPCD's rules and regulations) for fire protection vehicles if prior to the issuance of any grading permit for the Project shall purchase an Fire Engine with All Terrain Capabilities as specified and approved by the Fire Department. The Fire Engine cost estimate will be at Current Market Value for approved Fire Engine. Final Cost, conditions and equipment of the Fire Engine shall be determined prior to the issuance of the initial grading permit. The County agrees to require, as a condition of approval, other developers in the area to reimburse the Applicant for the expenses associated with the purchase of the Fire Engine. The Permittee shall be reimbursed only for those expenses in excess of their proportionate share for the purchase of the Fire Engine that the Permittee would have been required to pay. Furthermore, if a Fire Engine was already purchased by another developer in t the area, then the Permittee shall only be required to pay a fire mitigation in the amount of up to $100 per acre that would represent their proportionate share to reimburse the purchaser of the Fire Engine. The County shall be responsible for the managing the reimbursement component of this condition of approval. H.7

Permittee shall participate in the Imperial County Public Benefit Program for the life of the CUP and shall at all times be a party to a public benefit agreement in a form acceptable to the County Counsel in order to pay for all cost, benefits, and fees associated with the approved project. Approval of this public benefit agreement will be by the Board of Supervisors prior to the issuance of the first building permit. H.8

If you have any questions, please contact the Imperial County Fire Prevention Bureau at 442-265-3020 or 442-265-3021. H.9

Respectfully,
Robert Malek, Deputy Fire Marshal
Imperial County Fire Department

Sincerely
Andrew Loper
Lieutenant/Fire Prevention Specialist
Imperial County Fire Department
Fire Prevention Bureau

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

Letter H

Imperial County Fire Prevention Bureau

May 27, 2020

H.1 The project does not proposed an operations and maintenance (O&M) building. As discussed on Draft EIR page 2-16, "Once fully constructed, the proposed project would be operated on an unstaffed basis and be monitored remotely, with periodic on-site personnel visitations for security, maintenance and system monitoring. Therefore, no full-time site personnel would be required on-site during operations and employees would only be on-site four times per year to wash the panels."

H.2 The proposed site plan will comply with the road access and array requirements identified in this comment, including alley road widths and turning radius.

H.3 The proposed project will comply with the access and loading requirements identified in this comment.

H.4 The proposed project will comply with the water requirements identified in this comment.

H.5 As a condition of approval of the project, the applicant will be required to contribute the fees identified in this comment to address Imperial County Fire/OES expenses for service calls during construction, and during operation of the facility.

H.6 Comment noted.

H.7 As a condition of project approval, the applicant will participate in a reimbursable agreement for the purchase of a fire engine in the amount of $100 per project site acre.

H.8 Comment noted. The applicant will be required to participate in the Imperial County Public Benefit Program as a condition of approval of the project.

H.9 Comment noted.

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0.3 Errata to the Draft EIR

A. Introduction

This section of the Final Environmental Impact Report (EIR) identifies the location of, or contains revisions to, information included in the Draft EIR dated June 2020, based upon additional or revised information required to prepare a response to a specific comment. The information added to the EIR does not meet the requirements for recirculation pursuant to Section 15088.5 of the State *California Environmental Quality Act (CEQA) Guidelines*.

The new information simply clarifies information presented in the Draft EIR, and in one case, revises a mitigation measure. Text that has been added to the document appears in an underline format. Text that has been deleted appears with strikeout.

This Errata, in conjunction with the Final EIR, will be used by the County of Imperial in its evaluation and analysis of the proposed project and in the adoption of any findings required by law. Substantial evidence in support of findings may be found anywhere in the administrative record. (14CCR 15091(b)(e). The County of Imperial is designated the Lead Agency for California Environmental Quality Act (CEQA) compliance.

On-Site Wireless Communication System

In response to a comment submitted by the Imperial Irrigation District (IID) (response to comments "Letter G"), further clarification was provided regarding the proposed project's communication system. The comment describes IID's updated preliminary design for a communications tower that IID will install at the project site. The comment states that the communication tower is expected to be less than 40-feet tall, will be constructed using an auger truck and lift truck for the freestanding monopole without guy wire supports, and will be located in the southwest portion of the project site within the proposed Wister Substation. The comment states that communications equipment will be located within the substation control building. If the on-site wireless communication system is constructed, then construction of the off-site fiber optic cable would not be required.

A communication tower as described in the comments provided in Letter G, is an allowed use with the CUP application. (RE Overlay Zone, Title 9, Division 17: Renewable Energy Resources § 90519.02.) Communications towers up to 100 feet tall are allowed in the underlying S-2 Zone. (RE Overlay Zone, Title 9, Division 17: Renewable Energy Resources § 90519.07). There are no applicable height limitations in the RE Overlay Zone. (Title 9. Division 17.)

In response to this comment, Chapter 2 Project Description has been amended as follows:

> **2.3.2 Substation**
>
> The proposed Wister Substation would be a new 92/12-kV unstaffed, automated, low-profile substation. The dimensions of the fenced substation would be approximately 300 feet by 175 feet. The enclosed substation footprint would encompass approximately 1.2 acres <u>within the 100-acre project site footprint as part</u> of the approximately 640-acre project parcel. As shown on Figure 2-4, the proposed Wister Substation site would be located at the northwest quarter of the parcel, immediately southwest of the solar field. The California Building Code and the Institute of Electrical and Electronics Engineers (IEEE) 693, Recommended Practices for

Seismic Design of Substations, will be followed for the substation's design, structures, and equipment.

A wireless communication system will be located in the southwest portion of the site, within the substation area. This communication system will include a communication tower less than 40-feet in height. The tower will be a freestanding mono-pole without guy wire supports. Equipment associated with the communication system will be located within the substation control building. Overall, this would provide Supervisory Control and Data Acquisition (SCADA), protective relaying, data transmission, and telephone services for the proposed Wister Substation and associated facilities. New telecommunications equipment would be installed at the proposed Wister Substation within the Mechanical and Electrical Equipment Room (MEER). A representative example of a substation is presented on Figure 2-6.

2.3.3 Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~A proposed~~ a fiberoptic line extending from the proposed Wister Substation would be connected with the existing Niland Substation approximately two miles to the south, which would then be added to connect the proposed Wister Substation to the region's telecommunications system. ~~Overall, this would provide Supervisory Control and Data Acquisition (SCADA), protective relaying, data transmission, and telephone services for the proposed Wister Substation and associated facilities. New telecommunications equipment would be installed at the proposed Wister Substation within the Mechanical and Electrical Equipment Room (MEER).~~ As shown on Figure 2-3, the proposed fiber optic telecommunications cable would utilize existing transmission lines to connect to the Niland Substation. The length of the proposed fiber optic telecommunications cable route would be approximately two miles.

This Errata provides further detail as to this potential project feature. The proposed wireless communication would not result in an increase in any impact already addressed in the Draft EIR.

B. Corrections and Additions

Section 0 Executive Summary

Page ES-1:

Project Overview

The Wister Solar Energy Facility Project is located on Assessor Parcel No. 003-240-001. The proposed solar energy facility consists of three primary components: 1) solar energy generation equipment and associated facilities including a substation and access roads (herein referred to as "solar energy facility"); 2) gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing Imperial Irrigation District's (IID) 92-kilovolt (kV) "K" line; and, 3) on-site wireless communication system or off-site fiberoptic cable. These components are collectively referred to as the "proposed project" or "project."

The proposed project involves the construction and operation of a 20 Megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres of privately-owned land north of Niland. The proposed project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables. The proposed project also includes either an on-site wireless communication system, or an approximately two-mile ~~s of~~ fiberoptic line that would extend from the proposed on-site substation to the existing Niland Substation to connect the proposed Wister Substation to the region's telecommunications system.

Page ES-5:

Fire Protection. Fire protection and emergency medical services in the area are provided by the Imperial County Fire Department. The project site is located in the unincorporated area of Imperial County. According to the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the potential for a major fire in the unincorporated areas of the County is generally low. Both the access and service roads (along the perimeter of the project facility) would have turnaround areas to allow clearance for fire trucks per fire department standards (70 feet by 70 feet, and 20-foot-wide access road). While the proposed project may result in an increase in demand for fire protection service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered fire protection 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. Based on these considerations, the project would not result in a need for fire facility expansion and a less than significant impact would occur.

Police Protection. Police protection services in the project area is provided by the Imperial County Sheriff's Department. Although the potential is low, the proposed project ~~may~~ could attract ~~vandals~~ trespassers or other ~~security risks~~ unauthorized uses. The increase in construction related traffic could temporarily increase demand on law enforcement services. However, the project site would be fenced with a 6-foot high chain link security fence topped with barbed wire and points of ingress/egress would be accessed via locked gates. In addition, periodic on-site personnel visitations for security would occur during operations and maintenance of the proposed project, thereby minimizing the need for police surveillance. While the proposed project may result in a temporary increase in demand for law enforcement service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered sheriff 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. The sheriff's department has indicated that an all-terrain vehicle would be needed in order to patrol the project site; however, the fenced and secure project site does not result in an increase in demand on law enforcement that would require existing or new facilities to be upgraded in order to maintain service ratios. Further, as conditions of approval of the project, the project applicant will be required to participate in the Imperial County Public Benefit Program for the life of this CUP and shall at all times be a party to a public benefit agreement in a form acceptable to County Counsel in order to pay for all costs, benefits, and fees

associated with the approved project, and the applicant will be required to reimburse the Sheriff's Department for any investigations regarding theft on the Project site and related law enforcement. Approval of this public benefit agreement will be by the Board of Supervisors prior to the issuance of the first building permit. These potential impacts are less than significant. ~~This is considered a less than significant impact.~~

Page ES-6:

Storm Water Facilities. The proposed project will involve the construction of storm water drainage control facilities within the project site as shown on Figure 2-4 Preliminary Site Plan, ~~which are identified in the project site plan~~, and included in the project impact footprint, of which environmental impacts have been evaluated. Otherwise, the project does not require expanded or new storm drainage facilities off-site (i.e., outside of the project footprint) because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events, and therefore, would not require the construction of off-site storm water management facilities. Water from solar panel washing would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious. The proposed project would not require or result in the relocation or construction of new or expanded storm water facilities beyond those proposed as part of the project and evaluated in the EIR.

Page ES-22 Table ES-1:

Mitigation Measure BIO-4, bullet eight:

To fully mitigate for habitat loss and potential take of the Mojave desert tortoise, the Applicant will provide compensatory mitigation at a ratio of 1:1 ~~3:1~~. For the purposes of this measure, the project site (i.e., footprint) means all Project areas with new direct ground disturbance during construction and operation of the Project. This includes all lands directly disturbed that will no longer provide viable long-term habitat for the Mojave desert tortoise, such as the solar field, substation and new access roads. Areas within the gen-tie line corridor where no ground disturbance will occur are not included in the area to be mitigated through compensation. Compensatory mitigation could include agency-approved payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on preservation lands; or a combination of the three.

Page ES-41:

Original Site Plan Submittal

The project applicant originally proposed to construct and operate a 40 MW solar energy facility on approximately 300 acres within the western portion of the larger 640-acre project site parcel. The originally-proposed project was contemplated to be constructed in two phases (see Figure 7-2 in Chapter 7, Alternatives). Each phase would have produced 20 MW of energy and cover approximately 146 acres. A Power Purchase Agreement for 20 MW to San Diego Gas & Electric was secured by the project applicant for the first phase of the project. The second 20 MW phase would not be constructed until the time that an additional PPA is secured. The remaining portion

of the property would remain undeveloped in order to protect sensitive environmental resources. (Note: The project was subsequently modified to a 20 MW solar energy facility on an approximately 100-acre site as described in Section 2 Project Description).

Section 1 Introduction

Page 1-1:

Overview of the Proposed Project

The proposed Wister Solar Energy Facility Project is located on Assessor Parcel Number (APN) 003-240-001. The proposed solar energy facility consists of three primary components: 1) solar energy generation equipment and associated facilities including a substation and access roads (herein referred to as "solar energy facility"); 2) gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing IID 92 kV "K" line; and, 3) an on-site wireless communication system or off-site fiberoptic cable.

The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres of privately-owned land north of Niland. The proposed project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92 kilovolt (kV) substation, which will be tied directly to the Imperial Irrigation District's (IID) 92 kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92kV "K" line.

An on-site communication system or ~~A proposed~~ an off-site fiberoptic line that would extend from the proposed on-site substation would be connected with the existing Niland Substation approximately two miles to the south, which would then be added to connect the proposed on-site substation to the region's telecommunications system. The length of the proposed fiber optic telecommunications cable route would be approximately two miles.

Page 1-1, 1-2:

1. **Approval of Conditional Use Permit (CUP) – Solar Energy Facility.** Implementation of the project would require the approval of a CUP by the County to allow for the construction and operation of the proposed solar energy facility project. The project site is located on one privately-owned legal parcel (APN No. 003-240-001) zoned Open Space/Preservation with a Geothermal Overlay (S-2-G). Pursuant to Title 9, Division 5, Chapter 19, the following uses are permitted in the S-2 zone subject to approval of a CUP from Imperial County: *Major facilities relating to the generation and transmission of electrical energy provide[d] such facilities are not under State or Federal law, to [be] approved exclusively by an agency, or agencies of the State or Federal government, and provided such facilities shall be approved subsequent to coordination review of the Imperial*

Irrigation District for electrical matters. Such uses shall include but be limited to the following:

- *Electrical generation plants*
- *Facilities for the transmission of electrical energy (100-200 kV)*
- *Electrical substations in an electrical transmission system (500 kv/230 kv/161 kV)*
- *Communication Towers: including radio, television, cellular, digital, along with the necessary support equipment such as receivers, transmitters, antennas, satellite dishes, relays, etc.*

Page 1-7:

Availability of Reports

~~This~~ The Draft EIR and documents incorporated by reference ~~are~~ were made available for public review at the County of Imperial Planning and Development Services Department, 801 Main Street, El Centro, California 92243. Copies ~~are~~ were also available for review at the City of El Centro Public Library, 1140 N. Imperial Avenue, El Centro, California. Documents at these locations ~~may be reviewed~~ were available for review during regular business hours.

Pages 1-11, 1-12:

Fire Protection. Fire protection and emergency medical services in the area are provided by the Imperial County Fire Department. The project site is located in the unincorporated area of Imperial County. According to the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the potential for a major fire in the unincorporated areas of the County is generally low. Both the access and service roads (along the perimeter of the project facility) would have turnaround areas to allow clearance for fire trucks per fire department standards (70 feet by 70 feet, and 20-foot-wide access road). While the proposed project may result in an increase in demand for fire protection service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered fire protection 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. Based on these considerations, the project would not result in a need for fire facility expansion and a less than significant impact would occur.

Police Protection. Police protection services in the project area is provided by the Imperial County Sheriff's Department. Although the potential is low, the proposed project ~~may~~ could attract ~~vandals~~ trespassers or other ~~security risks~~ unauthorized uses. The increase in construction related traffic could temporarily increase demand on law enforcement services. However, the project site would be fenced with a 6-foot high chain link security fence topped with barbed wire and points of ingress/egress would be accessed via locked gates. In addition, periodic on-site personnel visitations for security would occur during operations and maintenance of the proposed project, thereby minimizing the need for police surveillance. While the proposed project may

result in a temporary increase in demand for law enforcement service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered sheriff 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. The sheriff's department has indicated that an all-terrain vehicle would be needed in order to patrol the project site; however, the fenced and secure project site does not result in an increase in demand on law enforcement that would require existing or new facilities to be upgraded in order to maintain service ratios. Further, as conditions of approval of the project, the project applicant will be required to participate in the Imperial County Public Benefit Program for the life of this CUP and shall at all times be a party to a public benefit agreement in a form acceptable to County Counsel in order to pay for all costs, benefits, and fees associated with the approved project, and the applicant will be required to reimburse the Sheriff's Department for any investigations regarding theft on the Project site and related law enforcement. Approval of this public benefit agreement will be by the Board of Supervisors prior to the issuance of the first building permit. These potential impacts are less than significant. ~~This is considered a less than significant impact.~~

Page 1-13:

Storm Water Facilities. The proposed project will involve the construction of storm water drainage control facilities within the project site as shown on Figure 2-4 Preliminary Site Plan, ~~which are identified in the project site plan~~, and included in the project impact footprint, of which environmental impacts have been evaluated. Otherwise, the project does not require expanded or new storm drainage facilities off-site (i.e., outside of the project footprint) because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events, and therefore, would not require the construction of off-site storm water management facilities. Water from solar panel washing would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious. The proposed project would not require or result in the relocation or construction of new or expanded storm water facilities beyond those proposed as part of the project and evaluated in the EIR.

Section 2 Project Description

Page 2-1:

Project Description

Chapter 2 provides a description of the Wister Solar Energy Project. This chapter also defines the goals and objectives of the proposed project, provides details regarding the individual components that together comprise the project, and identifies the discretionary approvals required for project implementation.

The proposed project consists of three primary components: 1) solar energy generation equipment and associated facilities including a substation and access roads (herein referred to as "solar energy facility"); 2) gen-tie line that would connect

the proposed on-site substation to the POI at the existing IID 92-kV "K" line; and, 3) on-site wireless communication system or off-site fiberoptic cable.

Project Location

Solar Energy Facility and Gen-Tie Line

The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County (Figure 2-1). The project site is located on one parcel of land identified as APN 003-240-001 (Figure 2-2). The parcel is comprised of approximately 640 acres of land and is currently zoned Open Space/Preservation with a Geothermal Overlay (S-2-G). The proposed solar energy facility component (including on-site wireless communication system), of the project would be located on approximately 100 acres within the northwest portion of the larger 640-acre project site parcel.

The project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (physical area where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road.

Fiberoptic Cable

The proposed project includes approximately two miles of fiberoptic line (i.e. cable) from the proposed on-site substation to the existing Niland Substation, located at 402 Beal Road in Niland. Figure 2-3 shows the alignment of the proposed fiberoptic cable. The fiber optic cable would only be constructed in the event that the proposed wireless communication system is not constructed on-site.

Page 2-5:

Project Characteristics

The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 MW PV solar energy facility on approximately 100 acres within APN No. 003-240-001 (privately-owned land) north of Niland. The proposed solar energy project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, an on-site wireless communication system, transformers, and underground electrical cables. Figure 2-4 depicts the proposed site plan.

Page 2-10:

Substation

The proposed Wister Substation would be a new 92/12-kV unstaffed, automated, low-profile substation. The dimensions of the fenced substation would be approximately 300 feet by 175 feet. The enclosed substation footprint would encompass approximately 1.2 acres within the 100-acre project site footprint as part of the approximately 640-acre project parcel. As shown on Figure 2-4, the proposed Wister Substation site would be located at the northwest quarter of the parcel, immediately southwest of the solar field. The California Building Code and the Institute of Electrical and Electronics Engineers (IEEE) 693, Recommended Practices for

Seismic Design of Substations, will be followed for the substation's design, structures, and equipment.

A wireless communication system will be located in the southwest portion of the site, within the substation area. This communication system will include a communication tower less than 40-feet in height. The tower will be a freestanding mono-pole without guy wire supports. Equipment associated with the communication system will be located within the substation control building. Overall, this would provide Supervisory Control and Data Acquisition (SCADA), protective relaying, data transmission, and telephone services for the proposed Wister Substation and associated facilities. New telecommunications equipment would be installed at the proposed Wister Substation within the Mechanical and Electrical Equipment Room (MEER). A representative example of a substation is presented on Figure 2-6.

Page 2-11:

Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~A proposed~~ a fiberoptic line extending from the proposed Wister Substation would be connected with the existing Niland Substation approximately two miles to the south, which would then be added to connect the proposed Wister Substation to the region's telecommunications system. ~~Overall, this would provide Supervisory Control and Data Acquisition (SCADA), protective relaying, data transmission, and telephone services for the proposed Wister Substation and associated facilities. New telecommunications equipment would be installed at the proposed Wister Substation within the Mechanical and Electrical Equipment Room (MEER).~~ As shown on Figure 2-3, the proposed fiber optic telecommunications cable would utilize existing transmission lines to connect to the Niland Substation. The length of the proposed fiber optic telecommunications cable route would be approximately two miles.

Page 2-16, 2-17:

Approval of CUP – Solar Energy Facility. Implementation of the project would require the approval of a CUP by the County to allow for the construction and operation of the proposed solar energy facility project. The project site is located on one privately-owned legal parcel zoned Open Space/Preservation with a Geothermal Overlay (S-2-G). Pursuant to Title 9, Division 5, Chapter 19, the following uses are permitted in the S-2 zone subject to approval of a CUP from Imperial County: *Major facilities relating to the generation and transmission of electrical energy provide[d] such facilities are not under State or Federal law, to [be] approved exclusively by an agency, or agencies of the State or Federal government, and provided such facilities shall be approved subsequent to coordination review of the Imperial Irrigation District for electrical matters. Such uses shall include but be limited to the following:*

- *Electrical generation plants*
- *Facilities for the transmission of electrical energy (100-200 kV)*
- *Electrical substations in an electrical transmission system (500 kv/230 kv/161 kV)*

- *Communication Towers: including radio, television, cellular, digital, along with the necessary support equipment such as receivers, transmitters, antennas, satellite dishes, relays, etc.*

Section 3.2 Aesthetics and Visual Resources

Page 3.2-26

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. No new transmission structures would be required to install the fiberoptic cable. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. The additional cable would be comparable in material and appearance to the existing cables on the transmission poles. The proposed fiber optic cable would result in a less than significant impact on a scenic vista, state scenic highway, degrade the existing visual character or quality of the site and its surroundings, or create a new source of light or glare.

Section 3.3 Air Quality

Page 3.3-21

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No new transmission structures would be required to install the fiberoptic cable.

The installation of the fiberoptic cable would result in short-term construction emissions from the operation of construction equipment and vehicle travel on paved and unpaved surfaces. However, construction emissions are not anticipated to exceed ICAPCD thresholds because the installation of the fiberoptic cable would not require grading or the use of a substantial number of heavy construction equipment. Furthermore, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. The proposed fiber optic cable would result in a less than significant air quality impact.

Section 3.4 Biological Resources

Page 3.4-34:

Mitigation Measure BIO4, bullet eight:

- To fully mitigate for habitat loss and potential take of the Mojave desert tortoise, the Applicant will provide compensatory mitigation at a ratio of 1:1 ~~3:1~~. For the purposes of this measure, the project site (i.e., footprint) means all Project areas with new direct ground disturbance during construction and operation of the Project. This includes all lands directly disturbed that will no longer provide viable long-term habitat for the Mojave desert tortoise, such as the solar field, substation and new access roads. Areas within the gen-tie line corridor where no ground disturbance will occur are not included in the area to be mitigated through compensation. Compensatory mitigation could include agency-approved payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on preservation lands; or a combination of the three.

Page 3.4-42:

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles and would not require grading or vegetation removal. No new transmission structures would be required to install the fiberoptic cable.

Construction

Staging and preparation of the poles would require vehicle traffic along the proposed route. Staging and access to each pole has the potential to crush vegetation and burrows and the temporary increase in vehicle traffic has potential to increase the risk of collision with wildlife. If desert tortoise was struck, the impact would be considered significant. Additionally, if construction was conducted during the breeding season there would be potential to damage active nests or disrupt nesting that may occur on the power poles. Taking active nests during construction would be considered a significant impact. Implementation of Mitigation Measures BIO-2, BIO-3, BIO-4, BIO-6, BIO-7 and BIO-9 shall reduce potential impacts to less than significant.

Because the fiberoptic cable is being strung on existing transmission line poles no significant new collision risk is being created. However, if traffic on the transmission line alignment is increased or maintenance activity at the poles is increased, operations could continue to result in increased risk of vegetation and burrows being crushed or of wildlife being struck be maintenance vehicles. As indicated above, if desert tortoise was struck, the impact would be considered significant. Implementation of Mitigation Measure BIO-5 would reduce potential impacts to less than significant.

Section 3.5 Cultural Resources

Page 3.5-17:

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No new transmission structures would be required to install the fiberoptic cable. No grading or excavation would be required. Therefore, installation of the fiberoptic cable would not involve ground disturbance. Based on these considerations, installation of the fiberoptic cable is not anticipated to impact cultural resources. No impact would occur.

Section 3.6 Geology and Soils

Page 3.6-13:

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiberoptic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No grading would be required. No new transmission structures would be required to install the fiberoptic cable. The proposed fiberoptic cable would result in no significant geology and soil impacts. Furthermore, because no grading would be required, paleontological resources would not be directly or indirectly destroyed during installation of the fiberoptic cable.

Section 3.7 Greenhouse Gas Emissions

Page 3.7-15:

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No new transmission structures would be required to install the fiberoptic cable.

The installation of the fiberoptic cable would result in GHG emissions from the operation of construction equipment and vehicle travel on paved and unpaved surfaces. Once operational, GHG emissions would be limited to vehicle trips associated with routine maintenance and monitoring activities at the project site. As

shown in Table 3.7-2, the yearly contribution to GHG from the construction of the solar energy facility and gen-tie line would be 18.8 $MTCO_2e$ per year. Therefore, the construction emissions are less than the SCAQMD's screening threshold of 3,000 $MTCO_2e$ per year. The installation of the fiberoptic cable would require substantially less construction equipment and shorter duration compared to the construction of the solar energy facility and gen-tie line. Based on this consideration, the installation of the fiberoptic cable would result in GHG emissions below allowable thresholds. This is considered a less than significant impact.

Section 3.8 Hydrology/Water Quality

Page 3.8-18:

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiberoptic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No grading would be required. No new transmission structures would be required to install the fiberoptic cable. The proposed fiberoptic cable would result in no significant hydrology and water quality impacts.

Section 3.9 Land Use Planning

Page 3.9-13:

Imperial County Airport Land Use Compatibility Plan

The Imperial County Airport Land Use Compatibility Plan (ALUCP) provides the criteria and policies used by the Imperial County Airport Land Use Commission to assess compatibility between the principal airports in Imperial County and proposed land use development in the areas surrounding the airports. The ALUCP emphasizes review of local general and specific plans, zoning ordinances, and other land use documents covering broad geographic areas.

The nearest airport to the project site is the Cliff Hatfield Memorial Airport, located approximately 10 miles south of the project site. According to Figure 3C of the ALUCP, no portion of the project site is located within the Cliff Hatfield Municipal Memorial Airport's land use compatibility zones (County of Imperial 1996). At its meeting on June 17, 2020, the Airport Land Use Commission reviewed the project for consistency with the ALUCP and made the finding that the project is consistent with the 1996 ALUCP.

Page 3.9-16:

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between

existing transmission poles within existing easements and/or ROW intended for utility uses. No new transmission structures would be required to install the fiberoptic cable. Further, the fiberoptic cable would not present a barrier between communities. Based on these considerations, the fiberoptic cable would not physically divide an established community or conflict with a land use plan, policy or regulation. No land use impacts would occur.

Section 6 Effects Found Not Significant

Page 6-4:

Fire Protection. Fire protection and emergency medical services in the area are provided by the Imperial County Fire Department. The project site is located in the unincorporated area of Imperial County. According to the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the potential for a major fire in the unincorporated areas of the County is generally low. Both the access and service roads (along the perimeter of the project facility) would have turnaround areas to allow clearance for fire trucks per fire department standards (70 feet by 70 feet, and 20-foot-wide access road). While the proposed project may result in an increase in demand for fire protection service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered fire protection 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. Based on these considerations, the project would not result in a need for fire facility expansion and a less than significant impact would occur.

Police Protection. Police protection services in the project area is provided by the Imperial County Sheriff's Department. Although the potential is low, the proposed project may attract vandals or other security risks. The increase in construction related traffic could increase demand on law enforcement services. However, the project site would be fenced with 6-foot high chain link security fence topped with barbed wire and points of ingress/egress would be accessed via locked gates. In addition, periodic on-site personnel visitations for security would occur during operations and maintenance of the proposed project, thereby minimizing the need for police surveillance. While the proposed project may result in a temporary increase in demand for law enforcement service, the project would not result in a an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered sheriff 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. The sheriff's department has indicated that an all-terrain vehicle would be needed in order to patrol the project site; however, the fenced and secure project site does not result in an increase in demand on law enforcement that would require existing or new facilities to be upgraded in order to maintain service ratios. Further, as conditions of approval of the project, the project applicant will be required to participate in the Imperial County Public Benefit Program for the life of this CUP and shall at all times be a party to a public benefit agreement in a form acceptable to County Counsel in order to pay for all costs, benefits, and fees associated with the approved project, and

the applicant will be required to reimburse the Sheriff's Department for any investigations regarding theft on the Project site and related law enforcement. Approval of this public benefit agreement will be by the Board of Supervisors prior to the issuance of the first building permit. These potential impacts are less than significant. ~~This is considered a less than significant impact.~~

Page 6-6:

Storm Water Facilities. The proposed project will involve the construction of drainage control facilities within the project site as shown on Figure 2-4 Preliminary Site Plan, ~~which are identified in the project site plan~~, and included in the project impact footprint, of which environmental impacts have been evaluated. Otherwise, the project does not require expanded or new storm drainage facilities off-site (i.e., outside of the project footprint) because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events, and therefore, would not require the construction of off-site storm water management facilities. Water from solar panel washing would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious. The proposed project would not require or result in the relocation or construction of new or expanded storm water facilities beyond those proposed as part of the project and evaluated in the EIR.

Section 7 Alternatives

Page 7-5:

Original Site Plan Submittal

The project applicant originally proposed to construct and operate a 40 MW solar energy facility on approximately 300 acres within the western portion of the larger 640-acre project site parcel. The originally-proposed project was contemplated to be constructed in two phases (Figure 7-2). Each phase would have produced 20 MW of energy and cover approximately 146 acres. A Power Purchase Agreement (PPA) for 20 MW to San Diego Gas & Electric (SDG&E) was secured by the project applicant for the first phase of the project. The second 20 MW phase would not be constructed until the time that an additional PPA is secured. The remaining portion of the property would remain undeveloped in order to protect sensitive environmental resources. (Note: The project was subsequently modified to a 20 MW solar energy facility on an approximately 100-acre site as described in Section 2 Project Description).

C. California Environmental Quality Act Requirements and Findings Supporting Decision Not To Recirculate

CEQA Section 15088.5(e) requires that an EIR which has been made available for public review, but not yet certified, be recirculated whenever significant new information has been added to the EIR. The entire document need not be recirculated, if revisions are limited to specific portions of the document. The recirculated portions or document must be sent to responsible and trustee agencies for consultation and fresh public notice must be given in the manner provided for a draft EIR. However, new information is not presumed to be significant simply because it is new. Indeed, pursuant to State CEQA Guidelines Section 15088.5:

> New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect . . . that the project's proponents have declined to implement. State CEQA Guidelines, § 15088.5(a):
>
> In order to be "significant," the new information requiring recirculation includes, for example, a disclosure showing that:
>
> > (1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
> >
> > (2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
> >
> > (3) A feasible project alternative or mitigation measure considerably different from other previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponent decline to adopt it.
> >
> > (4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. (State CEQA Guidelines, §15088.5(a)(1)-(4); *Laurel Heights II*, 6 Cal.4th at 1120.)

It is common, and in most cases necessary, to amplify and elaborate on the analysis of an EIR. CEQA anticipates this and such amplification does not constitute significant new "information" unless it triggers one of the four categories described in State CEQA Guidelines Section 15088.5(a). State CEQA Guidelines Section 15088.5(b) provides that "recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR."

Based upon review of the minor corrections and additions identified in Section A above, and the additional analyses provided in Table 0.3-1, the minor corrections and additions do not result in any new or substantially increased significant impacts. Additionally, the potential on-site wireless communication system would not result in any new or substantially increased significant impacts. Construction of the wireless system on-site would eliminate the need to construct the fiberoptic line, which would have extended from the proposed Wister Substation, connecting to the Niland Substation approximately two miles to the south of the project site. Therefore, the County has concluded that recirculation of the Draft EIR is not required.

Discussion of Environmental Impacts

The Draft EIR for the Wister Solar Energy project evaluated 10 environmental impacts and issues, including: aesthetics and resources; air quality; biological resources; cultural resources; geology and soils; greenhouse gas emissions; hydrology and water quality; land use planning; transportation traffic; and utilities and service systems. Table 0.3-1 lists each environmental topic evaluated in the Draft EIR and summarizes whether the proposed on-site wireless communication system would change any impacts associated with the project. As shown, implementation of the on-site wireless communication system would not change the analysis of the Draft EIR. Furthermore, no change to the type of proposed mitigation measures would be required.

Table 0.3-1. Summary of Environmental Impacts

Environmental Issue Area	Summary of Potential Impact
3.2 Aesthetics and Visual Resources	No change. The addition of a monopole structure, not exceeding 40 feet in height and located within the substation component of the project would not result in a significant visual impact. The monopole's height (maximum 40-feet) will be approximately 30 feet lower than the proposed gen-tie line (maximum 70-feet). Based on analysis contained within the Draft EIR, impacts to visual resources resulting from the implementation of the proposed project, including the construction of the gen-tie line, would not result in a significant impact. Because the proposed monopole would be located on-site and would be lower in profile than proposed gen-tie structures, there would be no change to this conclusion.
3.3 Air Quality	No change. The Draft EIR analysis of the proposed project concludes that the proposed project would not result in short-term air quality impacts during construction. Construction of the on-site wireless communication facility would require the use of an auger truck and lift truck, in a portion of the project site that will be initially graded as part of overall development of the project site. The construction of the monopole would require limited use of equipment, and would not require grading or use of substantial heavy construction equipment. Therefore ICAPCD thresholds are not anticipated to be exceeded. Additionally, emissions associated with the construction of the fiber optic line would not be generated. Therefore, there would be no change to this conclusion.
3.4 Biological Resources	No change. The proposed on-site wireless communication facility would be located within the disturbance footprint evaluated in Section 3.4 Biological Resources of the Draft EIR. Therefore, there would be no change to the Draft EIR conclusions related to biological resources.
3.5 Cultural Resources	No change. The proposed on-site wireless communication facility would be located within the disturbance footprint evaluated in Section 3.5 Cultural Resources of the Draft EIR. Therefore, there would be no change to the Draft EIR conclusions related to cultural resources.
3.6 Geology and Soils	No change. Geotechnical conditions would not change or be affected by the on-site wireless communication facility as the facility would be located within the disturbance area of the project, and in an area determined geotechnically suitable for construction of substation structures. Therefore, there would be no change to the Draft EIR conclusions related to geology and soils.

Table 0.3-1. Summary of Environmental Impacts

Environmental Issue Area	Summary of Potential Impact
3.7 Greenhouse Gas Emissions	No change. The Draft EIR analysis of the proposed project concludes that the proposed project would not result in short-term or long-term operational greenhouse gas (GHG) emissions impacts. Construction of the on-site wireless communication facility would require the use of an auger truck and lift truck, in a portion of the project site that will be initially graded as part of overall development of the project site. The construction of the monopole would require limited use of equipment, which would not generate significant GHG emissions. Additionally, emissions associated with the construction of the fiber optic line would not be generated. Therefore, there would be no change to the Draft EIR conclusions related to greenhouse gas emissions.
3.8 Hydrology/Water Quality	No change. The proposed on-site wireless communication facility would be located within the disturbance footprint evaluated in Section 3.8 Hydrology/Water Quality and would not otherwise alter the proposed drainage plan for the project. Therefore, there would be no change to the Draft EIR conclusions related to hydrology and water quality.
3.9 Land Use Planning	No change. The proposed on-site wireless communication system, including the monopole, which is a communication tower, is an allowed use with the CUP application. (RE Overlay Zone, Title 9, Division 17: Renewable Energy Resources § 90519.02.) Communications towers up to 100 feet tall are allowed in the underlying S-2 Zone. (RE Overlay Zone, Title 9, Division 17: Renewable Energy Resources § 90519.07). There are no applicable height limitations in the RE Overlay Zone. (Title 9. Division 17.) Therefore, there would be no change to the Draft EIR conclusions related to land use planning.
3.10 Transportation/Traffic	No change. The construction of the on-site wireless communication system would only require the use of an auger truck and a lift truck. This would not significantly impact transportation. Therefore, there would be no change to the Draft EIR conclusions related to transportation/traffic.
3.11 Utilities/Service Systems	No change. The construction of the on-site wireless communication system would not place a demand on utilities or service systems. Therefore, there would be no change to the Draft EIR conclusions related to utilities/service systems.

0.4 Mitigation Monitoring and Reporting Program

The County of Imperial will adopt this Mitigation Monitoring and Reporting Program (MMRP) in accordance with Public Resources Code (PRC) Section 21081.6 and Section 15097 of the California Environmental Quality Act (CEQA) Guidelines. The purpose of the MMRP is to ensure that the Wister Solar Energy Facility Project, which is the subject of the Environmental Impact Report (EIR), complies with all applicable environmental mitigation requirements. The mitigation measures for the project will be adopted by the County of Imperial, in conjunction with the certification of the Final EIR. The mitigation measures have been integrated into this MMRP.

The mitigation measures are provided in Table 0.4-1. The specific mitigation measures are identified, as well as the monitoring method, responsible monitoring party, monitoring phase, verification/approval party, date mitigation measure verified or implemented, location of documents (monitoring record), and completion requirement for each mitigation measure.

The mitigation measures applicable to the project include avoiding certain impacts altogether, minimizing impacts by limiting the degree or magnitude of the action and its implementation, and/or reducing or eliminating impacts over time by maintenance operations during the life of the action.

Public Resources Code Section 21081.6 requires the Lead Agency, for each project that is subject to CEQA, to monitor performance of the mitigation measures included in any environmental document to ensure that implementation does, in fact, take place. The County of Imperial is the designated CEQA lead agency for the Mitigation Monitoring and Reporting Program. The County of Imperial is responsible for review of all monitoring reports, enforcement actions, and document disposition as it relates to impacts within the County's jurisdiction. The County of Imperial will rely on information provided by the monitor as accurate and up to date and will field check mitigation measure status as required.

A record of the MMRP will be maintained at County of Imperial, Department of Planning and Development Services, 801 Main Street, El Centro, CA 92243. All mitigation measures contained in the EIR shall be made conditions of the project as may be further described below.

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Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
Air Quality								
AQ-1	**Construction Equipment.** Construction equipment shall be equipped with an engine designation of EPA Tier 2 or better (Tier 2+). A list of the construction equipment, including all off-road equipment utilized at each of the projects by make, model, year, horsepower and expected/actual hours of use, and the associated EPA Tier shall be submitted to the County Planning and Development Services Department and ICAPCD prior to the issuance of a grading permit. The equipment list shall be submitted periodically to ICAPCD to perform a NOx analysis. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.	Prior to the issuance of a grading permit, ICAPCD shall verify that construction equipment are equipped with an engine designation of EPA Tier 2 or better. The equipment list shall be submitted periodically to ICAPCD to perform a NOx analysis.	Department of Planning and Development Services and ICAPCD	Prior to the issuance of a grading permit and during construction	Department of Planning and Development Services and ICAPCD			
AQ-2	**Fugitive Dust Control.** Pursuant to ICAPCD, all construction sites, regardless of size, must comply with the requirements contained within Regulation VIII – Fugitive Dust Control Measures. Whereas these Regulation VIII measures are mandatory and are not considered project environmental mitigation measures, the ICAPCD CEQA Handbook's required additional standard and enhanced mitigation measures listed below shall be implemented prior to and during construction. ICAPCD will verify implementation and compliance with these measures as part of the grading permit review/approval process. ***ICAPCD Standard Measures for Fugitive Dust (PM_{10}) Control*** • All disturbed areas, including bulk material storage, which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material, such as vegetative ground cover. • All on-site and offsite unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.	Prior to and during construction, the ICAPCD will verify that the project is in compliance with Regulation VIII-Fugitive Dust Control Measures.	Department of Planning and Development Services and ICAPCD	Prior to and during construction	Department of Planning and Development Services and ICAPCD			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering. • The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material. • All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area. • Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line. • The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants, and/or watering. ***ICAPCD "Discretionary" Measures for Fugitive Dust (PM_{10}) Control*** • Water exposed soil only in those areas where active grading and vehicle movement occurs with adequate frequency to control dust. • Replace ground cover in disturbed areas as quickly as possible. • Automatic sprinkler system installed on all soil piles.							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• Vehicle speed for all construction vehicles shall not exceed 15 miles per hour on any unpaved surface at the construction site. • Develop a trip reduction plan to achieve a 1.5 average vehicle ridership for construction employees. • Implement a shuttle service to and from retail services and food establishments during lunch hours. ***Standard Mitigation Measures for Construction Combustion Equipment*** • Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum. • Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use. • Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set). ***Enhanced Mitigation Measures for Construction Equipment*** To help provide a greater degree of reduction of PM emissions from construction combustion equipment, ICAPCD recommends the following enhanced measures. • Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways. • Implement activity management (e.g., rescheduling activities to reduce short-term impacts).							
AQ-3	**Dust Suppression.** The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. The	During construction, the Department of Planning and Development Services shall verify that	Department of Planning and Development Services	During construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, and Fire Department access/emergency entry/exit points as approved by Fire/ Office of Emergency Services [OES] Department).	the project applicant is employing a method of dust suppression approved by ICAPCD.						
AQ-4	**Dust Suppression Management Plan.** Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Development Services Department (ICPDS) approval.	Prior to any earthmoving activity, the ICAPCD and Department of Planning and Development Services shall review and approve a construction Dust Control Plan.	ICAPCD and Department of Planning and Development Services	Prior to construction	Department of Planning and Development Services and ICAPCD			
AQ-5	**Operational Dust Control Plan.** Prior to issuance of a Certificate of Occupancy, the applicant shall submit an operations dust control plan and obtain ICAPCD and ICPDS approval. ICAPCD Rule 301 Operational Fees apply to any project applying for a building permit. At the time that building permits are submitted for the proposed project, the ICAPCD shall review the project to determine if Rule 310 fees are applicable to the project.	Prior to the issuance of a Certificate of Occupancy, the applicant shall submit an operations dust control plan and obtain ICAPCD and ICPDS approval.	Department of Planning and Development Services	Prior to the issuance of a Certificate of Occupancy	Department of Planning and Development Services and ICAPCD			
Biological Resources								
BIO-1	**Pre-Construction Plant Survey.** Prior to initiating ground disturbance, a focused survey for Harwood's milkvetch shall occur during its blooming period. A reference population shall be identified and confirmed to be blooming at the time that surveys are conducted on the project site. Should Harwood's milkvetch be present on site, project design will be evaluated to determine if modifications can be made to avoid at least 90-percent of the observed individuals or compensatory mitigation shall be provided through off-site preservation of an equivalent population.							
BIO-2	**General Impact Avoidance and Minimization Measures.** The following measures will be applicable throughout the life of the project: • To reduce the potential indirect impact on migratory birds, bats and raptors, the project	The measures as provided in Mitigation Measure BIO-2 shall be implemented throughout the life of the project.	Department of Planning and Development Services	Prior to construction, during construction, and post-construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	will comply with the APLIC 2012 Guidelines for overhead utilities, as appropriate, to minimize avian collisions with transmission facilities (APLIC 2012). • All electrical components on the project site shall be either undergrounded or protected so that there will be no exposure to wildlife and therefore no potential for electrocution. • The Project proponent shall designate a Project Biologist who shall be responsible for overseeing compliance with protective measures for the biological resources during vegetation clearing and work activities within and adjacent to areas of native habitat. The Project Biologist will be familiar with the local habitats, plants, and wildlife. The Project Biologist will also maintain communications with the Contractor to ensure that issues relating to biological resources are appropriately and lawfully managed and monitor construction. The Project Biologist will monitor activities within construction areas during critical times, such as vegetation removal, the implementation of Best Management Practices (BMP), and installation of security fencing to protect native species. The Project Biologist will ensure that all wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed. • The boundaries of all areas to be newly disturbed (including solar facility areas, staging areas, access roads, and sites for temporary placement of construction materials and spoils) will be delineated with stakes and flagging prior to disturbance. All disturbances, vehicles, and equipment will be confined to the flagged areas. • No potential wildlife entrapments (e.g., trenches, bores) will be left uncovered overnight. Any uncovered pitfalls will be excavated to 3:1 slopes at the ends to provide wildlife escape ramps. Alternatively, man-made ramps may be installed. Covered							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	pitfalls will be covered completely to prevent access by small mammals or reptiles. • To avoid wildlife entrapment (including birds), all pipes or other construction materials or supplies will be covered or capped in storage or laydown area, and at the end of each work day in construction, quarrying and processing/handling areas. No pipes or tubing of sizes or inside diameters ranging from 1 to 10 inches will be left open either temporarily or permanently. • No anticoagulant rodenticides, such as Warfarin and related compounds (indandiones and hydroxycoumarins), may be used within the project site, on off-site project facilities and activities, or in support of any other project activities. • Avoid wildlife attractants. All trash and food-related waste shall be placed in self-closing containers and removed regularly from the site to prevent overflow. Workers shall not feed wildlife. Water applied to dirt roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards to prevent the formation of puddles, which could attract wildlife. Pooled rainwater or floodwater within retention basins will be removed to avoid attracting wildlife to the active work areas. • To minimize the likelihood for vehicle strikes on wildlife, speed limits will not exceed 15 miles per hour when driving on access roads. All vehicles required for O&M must remain on designated access/maintenance roads. • Avoid night-time construction lighting or if nighttime construction cannot be avoided use shielded directional lighting pointed downward and towards the interior of the project site, thereby avoiding illumination of adjacent natural areas and the night sky. • All construction equipment used for the Project will be equipped with properly operating and maintained mufflers.							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel hand-held equipment, will be stored within secondary containment when within 50 feet of open water to the fullest extent practicable. Secondary containment will consist of a ring of sand bags around each piece of stored equipment/structure. A plastic tarp/visqueen lining with no seams shall be placed under the equipment and over the edges of the sandbags, or a plastic hazardous materials secondary containment unit shall be utilized by the Contractor. • The Contractor will be required to conduct vehicle refueling in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species. Any fuel containers, repair materials, including creosote-treated wood, and/or stockpiled material that is left on site overnight, will be secured in secondary containment within the work area and staging/assembly area and covered with plastic at the end of each work day. • In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor will ensure that all portable fuel containers are removed from the project site. • All equipment will be maintained in accordance with manufacturer's recommendations and requirements. • Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan or equivalent, Materials Safety Data Sheets, and any specifications required by other permits issued for the project. • The Contractor will utilize off-site maintenance and repair shops as much as possible for maintenance and repair of equipment.							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment will be used to capture spills/leaks within all areas. Where feasible, maintenance of equipment will occur in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species. • Appropriate BMPs will be used by the Contractor to control erosion and sedimentation and to capture debris and contaminants from bridge construction to prevent their deposition in waterways. No sediment or debris will be allowed to enter the creek or other drainages. All debris from construction of the bridge will be contained so that it does not fall into channel. Appropriate BMPs will be used by the Contractor during construction to limit the spread of resuspended sediment and to contain debris. • Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard. • Firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment. • Cross-country vehicle and equipment use outside of approved designated work areas and access roads shall be prohibited to prevent unnecessary ground and vegetation disturbance. • Any injured or dead wildlife encountered during project-related activities shall be reported to the project biologist, biological monitor, CDFW, or a CDFW-approved veterinary facility as soon as possible to report the observation and determine the best course of action. For special-status species, the Project Biologist shall notify the County,							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	USFWS, and/or CDFW, as appropriate, within 24 hours of the discovery. • Stockpiling of material will be allowed only within established work areas. • Actively manage the spread of noxious weeds (See Mitigation Measure BIO-5) • The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving.							
BIO-3	**Worker Environmental Awareness Program.** Prior to project construction, a Worker Environmental Awareness Program shall be developed and implemented by a qualified biologist, and shall be available in both English and Spanish. Handouts summarizing potential impacts to special-status biological resources and the potential penalties for impacts to these resources shall be provided to all construction personnel. At a minimum, the education program shall including the following: • the purpose for resource protection; • a description of special status species including representative photographs and general ecology; • occurrences of USACE, RWQCB, and CDFW regulated features in the Project study area; • regulatory framework for biological resource protection and consequences if violated; • sensitivity of the species to human activities; • avoidance and minimization measures designed to reduce the impacts to special-status biological resources; • environmentally responsible construction practices; • reporting requirements; • the protocol to resolve conflicts that may arise at any time during the construction process; and • workers sign acknowledgement form indicating that the Environmental Awareness	Prior to construction, the Department of Planning and Development Services shall verify that a Worker Environmental Awareness Program has been implemented by a qualified biologist. The Department of Planning and Development Services shall verify the completion of the Worker Environmental Awareness Program by obtaining signed acknowledgements forms from workers.	Department of Planning and Development Services	Prior to construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Training and Education Program that has been completed and would be kept on record.							
BIO-4	**Desert Tortoise Avoidance and Minimization.** A qualified biologist shall conduct focused presence/absence surveys for Desert Tortoise for 100-percent of the project footprint pursuant to the October 19, 2019 Version of the USFWS Desert Tortoise Survey Protocol. If no live desert tortoise or sign of active desert tortoise are detected, no further avoidance and minimization is required. If live desert tortoise or sign of active desert tortoise are detected, the project proponent shall initiate consultation with USFWS and CDFW to obtain the necessary federal and state ESA authorizations and the following avoidance, minimization and compensatory mitigation measures will be implemented: • Permanent tortoise-proof fencing shall be along the perimeter of the project site. Fencing shall be installed, inspected, and maintained according to specifications in the current USFWS *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)*. An authorized desert tortoise biologist shall conduct pre-construction clearance surveys for the project site no more than 14-days prior to the initiation of fence installation. All potentially active burrows shall be identified for hand excavation. Pre-construction clearance surveys shall be repeated within the fenced impact area after fence installation is complete. If desert tortoise are observed they shall be relocated from within the work area to outside the fenced area by a permitted biologist. • The authorized biologist shall conduct desert tortoise pre-construction clearance surveys along all existing and new dirt access road alignments, and the Gen-tie alignment before any ground disturbing activities are initiated and prior to the start of construction activities each day during ground-disturbing activities and weekly thereafter. Relocate desert tortoises as necessary. Any handling of special-status species must be approved by the appropriate Federal and State agencies	Prior to construction, the Department of Planning and Development Services shall verify that focused presence/absence surveys for Desert Tortoise were conducted by a qualified biologist. If live desert tortoise or sign of active desert tortoise is detected, the measures as listed in Mitigation Measure BIO-4 shall be implemented.	Department of Planning and Development Services	Prior to construction, during construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	and be done in accordance with species-specific handling protocols. • Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of the authorized biologists with demonstrated prior experience with this species. • Inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat, before the materials are moved, buried, or capped. • Incorporate Raven Management into the Pest Control Plan (See BIO-5). • Inspect the ground under vehicles and equipment for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, an authorized biologist or biological monitor under the direction of the authorized biologist may remove and relocate the animal to a safe location. • All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages. If possible, pipes and culverts greater than 3 inches in diameter would be stored on dunnage to prevent wildlife from taking refuge in them, to the extent feasible. • To fully mitigate for habitat loss and potential take of the Mojave desert tortoise, the Applicant will provide compensatory mitigation at a ratio of 1:1 For the purposes of this measure, the project site (i.e., footprint) means all Project areas with new direct ground disturbance during construction and operation of the Project. This includes all lands directly disturbed that will no longer provide viable							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	long-term habitat for the Mojave desert tortoise, such as the solar field, substation and new access roads. Areas within the gen-tie line corridor where no ground disturbance will occur are not included in the area to be mitigated through compensation. Compensatory mitigation could include agency-approved payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on preservation lands; or a combination of the three.							
BIO-5	**Prepare and Implement an Operation and Maintenance Worker Education Plan.** An Operation and Maintenance Worker Education Plan shall be prepared to advise personnel on general operations measures. The Worker Education Plan shall be submitted to the County of Imperial Planning and Development Services Department for review and approval prior to issuance of building permits. The following provisions shall be included in the Worker Education Plan and implemented throughout the operational lifespan of the Project: Operation and maintenance personnel shall be prohibited from: • Exceeding nighttime and daytime vehicle speeds of 10 miles per hour and 25 miles per hour, respectively, within the facility, on access roads and within the Gen-Tie line corridor. Speed limit signs shall be posted throughout the project site to remind workers of travel speed restrictions. • Harming, harassing, or feeding wildlife and/or collecting special-status plant or wildlife species. • Disturbing active avian nests • Traveling (either on foot or in a vehicle) outside of the Project footprint except on public roads. • Littering on the Project area. • Allowing persons not employed at the facility to remain on site after daylight hours. • Exceeding normal nighttime operational noise or lighting levels	Prior to issuance of building permits, the Department of Planning and Development Services shall review and approve the Operation and Maintenance Worker Education Plan.	Department of Planning and Development Services	Prior to issuance of building permits	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Bringing domestic pets and firearms to the site. The Operation and Maintenance Worker Education Plan shall require that: • All operation and maintenance vehicles and equipment park in approved designated areas only. • The project site and Gen-Tie line corridor be kept clear of trash and other litter to reduce the attraction of opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species. • Operation and maintenance employees maintain Hazardous Materials Spill Kits on-site. All operation and maintenance staff shall be trained in how to use Hazardous Materials Spill Kits in the event of a spill. • An approved Long-Term Maintenance Plan for the retention/detention basins be developed and implemented. • Weed and Raven management shall be addressed in a project-specific pest management plan (See BIO-5) • Maintain shielding on external lighting to direct down and towards the project site and away from adjacent undeveloped land. • Workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed and would be kept on record • desert tortoise avoidance and minimization measures be implemented if desert tortoise is detected during pre-construction surveys • The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving. • Personnel are trained to avoid causing wildfires and manage them safely and promptly if necessary							
BIO-6	**Burrowing Owl Avoidance and Minimization.** Take Avoidance (pre-construction) surveys for burrowing owl shall be completed prior to project construction.	Prior to construction, the Department of Planning and Development Services shall verify that	Department of Planning and Development Services	Prior to construction, during construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Surveys shall be conducted as detailed within Appendix D of the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game [CDFG] 2012). If burrowing owl is not detected, construction may proceed. • If burrowing owl is identified during the non-breeding season (September 1 through January 31), then a 50 meter buffer will be established by the biological monitor. Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until a CDFW-approved exclusion plan has been implemented. The buffer distance may be reduced if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities. • If burrowing owl is identified during the breeding season (February 1 through August 31), then an appropriate buffer will be established by the biological monitor in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until young have fledged. The buffer distance may be reduced in consultation with CDFW if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities.	pre-construction surveys for burrowing owl were conducted. If burrowing owl are present, the measures as listed in Mitigation Measure BIO-6 shall be implemented.						
BIO-7	**Pre-Construction Nesting Bird Surveys.** To the extent possible, construction shall occur outside the typical avian breeding season (February 15 through September 15). If construction must occur during the general avian breeding season, a pre-construction nest survey shall be conducted within the impact area and a 500-foot (150-meter) buffer by qualified biologist no more than 7 days prior to the start of vegetation clearing and/or ground disturbing construction activities in any given area of the Project footprint. Construction crews shall coordinate with the qualified biologist at least 7 days prior to the start of construction in a given area to ensure that the construction area has been adequately surveyed. A nest is defined as active once birds begin constructing or repairing the nest in readiness for egg-laying. A	Prior to construction, the Department of Planning and Development Services shall verify that a pre-construction nesting survey was conducted. If nesting birds are present, the measures as listed in Mitigation Measure BIO-7 shall be implemented.	Department of Planning and Development Services	Prior to construction, during construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	nest is no longer an "active nest" if abandoned by the adult birds or once nestlings or fledglings are no longer dependent on the nest. If no active nests are discovered, construction may proceed. If active nests are observed that could be disturbed by construction activities, these nests and an appropriately sized buffer (typically a 200-foot (61-meter) buffer for non-raptor species nests and at least a 500-foot (150-meter) buffer for raptor or federally listed species nests) would be avoided until the young have fledged. Final construction buffers or setback distances shall be determined by the qualified biologist in coordination with USFWS and CDFW on a case-by-case basis, depending on the species, season in which disturbance shall occur, the type of disturbance, and other factors that could influence susceptibility to disturbance (e.g., topography, vegetation, existing disturbance levels, etc.). Active nests shall be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated to the nesting birds or their young. If vegetation clearing and/or ground disturbing activities cease for 14 or more consecutive days during the nesting season in areas where suitable nesting habitat remains, repeat nesting bird surveys shall be required to ensure new nesting locations have not been established within the impact area and the defined buffers.							
BIO-8	**Develop a Bird and Bat Conservation Strategy (BBCS).** A BBCS shall be developed by the Project Applicant in coordination with the County of Imperial, USFWS, and CDFW. The BBCS will include the following components: • A description and assessment of the existing habitat and avian and bat species; • An avian and bat risk assessment and specific measures to avoid, minimize, reduce, or eliminate avian and bat injury or mortality during all phases of the project. • A post-construction monitoring plan that will be implemented to assess impacts on avian and bat species resulting from the Project. • The post-construction monitoring plan will include a description of standardized carcass searches, scavenger rate (i.e., carcass	Prior to construction, the Department of Planning and Development Services shall verify that a Bird and Bat Conservation Strategy has been developed by the project applicant in coordination with the County of Imperial, USFWS, and CDFW.	Department of Planning and Development Services	Prior to construction, during construction, post-construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	removal) trials, searcher efficiency trials, and reporting. Statistical methods will be used to estimate Project avian and bat fatalities if sufficient data is collected to support statistical analysis. • An injured bird response plan that delineates care and curation of any and all injured birds. • A nesting bird management strategy to outline actions to be taken for avian nests detected within the impact footprint during operation of the Project. • A conceptual adaptive management and decision-making framework for reviewing, characterizing, and responding to monitoring results. • Monitoring studies following commencement of commercial operation of each CUP area. Monitoring results will be reviewed annually by the Applicant and the County of Imperial, in consultation with CDFW and USFWS, to inform adaptive management responses. During Project construction, incidental avian carcasses or injured birds found during construction shall be documented. Should a carcass be found by Project personnel, the carcass shall be photographed, the location shall be marked, the carcass shall not be moved, and a qualified biologist shall be contacted to examine the carcass. When a carcass is detected, the following data shall be recorded (to the extent possible): observer, date/time, species or most precise species group possible, sex, age, estimated time since death, potential cause of death or other pertinent information, distance and bearing to nearest structure (if any) that may have been associated with the mortality, location (recorded with Global Positioning System), and condition of carcass. • If any federal listed, state listed or fully protected avian carcasses or injured birds are found during construction or post-construction monitoring, the Project Applicant shall notify USFWS and CDFW within 24 hours via email or phone and work with the resource agencies							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	to determine the appropriate course of action for these species. For such listed species, the CUP owner shall obtain or retain a biologist with the appropriate USFWS Special Purpose Utility Permit(s) and CDFW Scientific Collecting Permit(s) to collect and salvage all dead and injured birds, and store/curate them in freezers for later disposition and analysis.							
BIO-9	**Pre-Construction Surveys for American Badger.** Preconstruction surveys shall be conducted by a qualified biologist for the presence of American badger dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for American badger, which include desert scrub habitats. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the project site disturbed. If potential dens are observed and avoidance is feasible, the following buffer distances shall be established prior to construction activities: • American badger potential den: 30 feet. • American badger active den: 100 feet. • American badger natal den: 500 feet. • If avoidance of the potential dens is not possible, the following measures are required to avoid potential adverse effects to the American badger • Outside the reproductive season defined as February 1 through September 30 for American badger if the qualified Lead Biologist determines through camera monitoring for three consecutive days that potential dens are inactive, the biologist shall excavate these dens by hands with a shovel to prevent American badgers from re-using them during construction. • Outside of the reproductive season defined as February 1 through September 30 for American badger if the Lead Biologist determines that potential dens may be active, an onsite passive relocation program shall be implemented. This program shall consist of excluding American badgers from occupied	The Department of Planning and Development Services shall verify that pre-construction surveys for American badger dens were conducted within 14 days prior to commencement of construction activities. If American badger dens are present, the measures as listed in Mitigation Measure BIO-9 shall be implemented.	Department of Planning and Development Services	Prior to construction, during construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for seven days to confirm usage has discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that American badgers have stopped using the dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent use during construction.							
BIO-10	**Compensatory Mitigation for Riparian Woodland and Ephemeral Wash.** Following the completion of project construction, Palo Verde- Ironwood Woodland will be created, enhanced and or conserved within the undeveloped portions of the project site at a ratio of 3:1 (i.e., 3 acres created or enhanced for each acre impacted) by permanent or temporary project activities). Permanent impacts to jurisdictional waters and wetlands shall be mitigated at a minimum 1:1 ratio either through on-site and/or off-site re-establishment, enhancement and conservation of jurisdictional waters or through an approved-mitigation bank or in lieu fee program, if one is available. The type of mitigation, mitigation location and the final mitigation ratios will be established during the permit process for the Project's USACE Section 404 permit, the RWQCB Section 401 Water Quality Certification, and a CDFW Streambed Alteration Agreement, as applicable.	Within 1 year of project construction, the Department of Planning and Development Services shall confirm that Palo Verde- Ironwood Woodland has been created, enhanced, and/or conserved within the undeveloped portions of the project site at a ratio of 3:1. The Department of Planning and Development Services shall confirm that impacts to jurisdictional waters and wetlands were mitigated at a minimum 1:1 ratio either through on-site and/or off-site re-establishment, enhancement and conservation of jurisdictional waters or through an approved-mitigation bank or in lieu fee program.	Department of Planning and Development Services	Post construction	Department of Planning and Development Services			
BIO-11	**Develop and Implement a Pest Management Plan.** The Project shall develop and implement a Pest Management Plan that will reduce negative impacts to surrounding (not necessarily adjacent) farmland during construction, operation and reclamation. The Plan shall include: • Methods for Preventing the Introduction and Spread of pests, including weeds. • Monitoring methods for all agricultural pests and weeds with potential to adversely impact adjacent native habitat (Species on California	The Department of Planning and Development Services shall verify that a Pest Management Plan has been reviewed and approved by the Imperial County Agricultural Commissioner.	Department of Planning and Development Services and Imperial County Agricultural Commissioner	Prior to construction, during construction	Department of Planning and Development Services and Imperial County Agricultural Commissioner			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Invasive Plants Council Inventory rated as Moderately to Highly Invasive) to including insects, vertebrates, weeds, and pathogens. • Eradication and Control Methods All treatments must be performed by a qualified applicator or a licensed pest control business. o "Control" means to reduce the population of common pests below economically damaging levels, and includes attempts to exclude pests before infestation, and effective control methods after infestation. o Effective control methods may include physical/mechanical removal, biocontrol, cultural control, or chemical treatments. o Use of "permanent" soil sterilants to control weeds or other pests is prohibited due to the fact that this would interfere with reclamation. • Notification Requirements: o Notify the Agricultural Commissioner's office immediately regarding any suspected exotic/invasive pest species as defined by the California Department of Food Agriculture (CDFA) and the USDA. o Request a sample be taken by the Agricultural Commissioner's Office of a suspected invasive species. • Eradication of exotic pests will be done under the direction of the Agricultural Commissioner's Office and/or CDFA. • Obey all pesticide use laws, regulations, and permit conditions. • Allow access by Agricultural Commissioner staff for routine visual and trap pest surveys, compliance inspections, eradication of exotic pests, and other official duties. • Ensure that all project employees that handle pest control issues are appropriately trained and certified, that all required records are maintained and available for inspection, and that all permits and other required legal documents are current.							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• Maintain records of pests found and treatments or pest management methods used. Records should include the date, location/block, project name (current and previous if changed), and methods used. For pesticides include the chemical(s) used, EPA Registration numbers, application rates, etc. A pesticide use report may be used for this. • Reporting Methods • Submit a report of monitoring, pest finds, and treatments, or other pest management methods to the Agricultural Commissioner quarterly within 15 days after the end of the previous quarter, and upon request. • The report is required even if no pests were found or treatment occurred. It may consist of a copy of all records for the previous quarter, or may be a summary letter/report as long as the original detailed records are available upon request.							
Cultural Resources								
CR-1	Pursuant to CEQA Guidelines §15064.5(f), in the event that previously unidentified unique archaeological resources are encountered during construction or operational repairs, archaeological monitors will be authorized to temporarily divert construction work within 100 feet of the area of discovery until significance and the appropriate mitigation measures are determined by a qualified archaeologist familiar with the resources of the region. Applicant shall notify the County within 24 hours. Applicant shall provide contingency funding sufficient to allow for implementation of avoidance measures or appropriate mitigation.	The applicant shall notify the County within 24 hours if unidentified unique archaeological resources are encountered. The County shall verify that the applicant has provided contingency funding sufficient to allow for implementation of avoidance measures or appropriate mitigation.	Department of Planning and Development Services	During grading and construction	Department of Planning and Development Services			
CR-2	In the event of the discovery of previously unidentified archaeological materials, the contractor shall immediately cease all work activities within approximately 100 feet of the discovery. After cessation of excavation, the contractor shall immediately contact the Imperial County Department of Planning and Development Services. Except in the case of cultural items that fall within the scope of the Native American Grave Protection and Repatriation	The applicant shall notify the County immediately if unknown archaeological resources are encountered. The applicant shall retain the services of a qualified professional archaeologist	Department of Planning and Development Services	During grading	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Act, the discovery of any cultural resource within the project area shall not be grounds for a "stop work" notice or otherwise interfere with the project's continuation except as set forth in this paragraph. In the event of an unanticipated discovery of archaeological materials during construction, the applicant shall retain the services of a qualified professional archaeologist, meeting the Secretary of the Interior's Standards for a Qualified Archaeologist, to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If the qualified archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the applicant shall implement an archaeological data recovery program.	in the event of an unanticipated discovery.						
CR-3	In the event that evidence of human remains is discovered, construction activities within 200 feet of the discovery will be halted or diverted and the Imperial County Coroner will be notified (Section 7050.5 of the HSC). If the Coroner determines that the remains are Native American, the Coroner will notify the NAHC, which will designate a MLD for the project (Section 5097.98 of the PRC). The designated MLD then has 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains (AB 2641). If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a document with the county in which the property is located (AB 2641).	During construction and operational repair period, discovery of human remains shall result in workstoppage in that area until the coroner and the Native American Heritage Commission are contacted.	Department of Planning and Development Services	During construction and operations	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
Geology and Soils								
GEO-1	**Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.** Facility design for all project components shall comply with the site-specific design recommendations as provided by a licensed geotechnical or civil engineer to be retained by the project applicant. The final geotechnical and/or civil engineering report shall address and make recommendations on the following: • Site preparation • Soil bearing capacity • Appropriate sources and types of fill • Potential need for soil amendments • Structural foundations • Grading practices • Soil corrosion of concrete and steel • Erosion/winterization • Seismic ground shaking • Liquefaction • Expansive/unstable soils In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include subsurface testing of soil and groundwater conditions, and shall determine appropriate foundation designs that are consistent with the version of the CBC that is applicable at the time building and grading permits are applied for. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicant. The final geotechnical and/or civil engineering report shall be submitted to Imperial County Public Works Department, Engineering Division for review and approval prior to issuance of building permits.	Prior to the issuance of a grading permit, the Imperial County Public Works Department, Engineering Division shall review and approve a Final Geotechnical Report and/or Civil Engineering Report.	Department of Planning and Development Services and Imperial County Public Works Department, Engineering Division	Prior to issuance of a grading permit	Department of Planning and Development Services and Imperial County Public Works Department, Engineering Division			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
GEO-2	In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the project site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.	The applicant shall retain the services of a qualified paleontological monitor in the event of an unanticipated discovery. The paleontological monitor shall be on-site in accordance with this measure to implement this measure. A monitoring report shall be prepared and submitted to the Department of Planning and Development Services for review and approval.	Department of Planning and Development Services	During grading	Department of Planning and Development Services			
Hydrology/Water Quality								
HYD-1	**Prepare SWPPP and Implement BMPs Prior to Construction and Site Restoration.** The project applicant or its contractor shall prepare a SWPPP specific to the project and be responsible for securing coverage under SWRCB's NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ). The SWPPP shall identify specific actions and BMPs relating to the prevention of stormwater pollution from project-related construction sources by identifying a practical sequence for site restoration, BMP implementation, contingency measures, responsible parties, and agency contacts. The SWPPP shall reflect localized surface hydrological conditions and shall be reviewed and approved by the appropriate agency prior to commencement of work and shall be made conditions of the contract with the contractor selected to build and decommission the project. The SWPPP shall incorporate control measures in the following categories: • Soil stabilization and erosion control practices (e.g., hydroseeding, erosion control blankets, mulching)	Prior to construction and site restoration, the project applicant or its contractor shall prepare a SWPPP with incorporated control measures outlined in Mitigation Measure HYD-1; and implement BMPs. Department of Planning and Development Services to confirm.	Department of Planning and Development Services	Prior to issuance of a grading permit and site restoration	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• Sediment control practices (e.g., temporary sediment basins, fiber rolls) • Temporary and post-construction on- and off-site runoff controls • Special considerations and BMPs for water crossings and drainages • Monitoring protocols for discharge(s) and receiving waters, with emphasis place on the following water quality objectives: dissolved oxygen, floating material, oil and grease, potential of hydrogen (pH), and turbidity • Waste management, handling, and disposal control practices • Corrective action and spill contingency measures • Agency and responsible party contact information • Training procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP The SWPPP shall be prepared by a Qualified SWPPP Practitioner and/or Qualified SWPPP Developer with BMPs selected to achieve maximum pollutant removal and that represent the best available technology that is economically achievable. Emphasis for BMPs shall be placed on controlling discharges of oxygen-depleting substances, floating material, oil and grease, acidic or caustic substances or compounds, and turbidity. BMPs for soil stabilization and erosion control practices and sediment control practices will also be required. Performance and effectiveness of these BMPs shall be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (inadvertent petroleum release) is required to determine adequacy of the measure.							
HYD-2	**Incorporate Post-Construction Runoff BMPs into Project Drainage Plan.** The project Drainage Plan shall adhere to the County's Engineering Guidelines	Post construction for the project site, the Applicant shall implement a	Department of Planning and Development Services	Post construction	Department of Planning and Development Services and IID			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Manual, IID "Draft" Hydrology Manual, or other recognized source with approval by the County Engineer to control and manage the on- and off-site discharge of stormwater to existing drainage systems. Infiltration basins will be integrated into the Drainage Plan to the maximum extent practical. The Drainage Plan shall provide both short- and long-term drainage solutions to ensure the proper sequencing of drainage facilities and management of runoff generated from project impervious surfaces as necessary.	Drainage Plan in accordance with the County and Imperial Irrigation District guidelines as outlined in Mitigation Measure HYD-3. Department of Planning and Development Services and Imperial Irrigation District to confirm.						

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Executive Summary

This Environmental Impact Report (EIR) has been prepared in compliance with the California Environmental Quality Act (CEQA) Public Resources Code [PRC] Section 21000 et seq., the CEQA Guidelines (Section 15000 et seq.) as promulgated by the California Resources Agency and the Governor's Office of Planning and Research (OPR). The purpose of this environmental document is to assess the potential environmental effects associated with the Wister Solar Energy Facility Project and to propose mitigation measures, where required, to reduce significant impacts.

Project Overview

The Wister Solar Energy Facility Project is located on Assessor Parcel No. 003-240-001. The proposed solar energy facility consists of three primary components: 1) solar energy generation equipment and associated facilities including a substation and access roads (herein referred to as "solar energy facility"); 2) gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing Imperial Irrigation District's (IID) 92-kilovolt (kV) "K" line; and, 3) on-site wireless communication system or off-site fiberoptic cable. These components are collectively referred to as the "proposed project" or "project."

The proposed project involves the construction and operation of a 20 Megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres of privately-owned land north of Niland. The proposed project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables. The proposed project also includes either an on-site wireless communication system, or an approximately two-mile ~~s of~~ fiberoptic line that would extend from the proposed on-site substation to the existing Niland Substation to connect the proposed Wister Substation to the region's telecommunications system.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92-kV substation, which will be tied directly to IID's 92-kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92-kV "K" line. The project applicant has secured a Power Purchase Agreement with San Diego Gas and Electric for the sale of power from the project.

The proposed project may utilize groundwater available at the project site for project construction, and potentially limited operational activities. A groundwater well would be constructed and operated near the existing geothermal well pad (and proposed project construction staging area) located in the north-western portion of the project site.

Purpose of an EIR

The purpose of an EIR is to analyze the potential environmental impacts associated with a project. CEQA (Section 15002) states that the purpose of CEQA is to: (1) inform the public and governmental decision makers of the potential significant environmental impacts of a project; (2) identify the ways that environmental damage can be avoided or significantly reduced; (3) prevent significant avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and (4) disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Eliminated from Further Review in Notice of Preparation

Based on the Initial Study and Notice of Preparation (IS/NOP) prepared for the proposed project (Appendix A of this EIR), Imperial County (County) has determined that the proposed project would not have the potential to cause significant adverse effects associated with the topics identified below. Therefore, these topics are not addressed in this EIR. However, the rationale for eliminating these topics is briefly discussed below.

Agriculture Resources

According to the farmland maps prepared by the California Department of Conservation (2017), the project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (California Department of Conservation 2017). The proposed project would not convert Important Farmland to non-agricultural uses.

The project site is currently designated by the General Plan as “Recreation” and is zoned “Open Space/Preservation” with a Geothermal Overlay (S-2-G). According to the 2016/2017 Imperial County Williamson Act Map produced by the California Department of Conservation’s Division of Land Resource Protection, the project site is not located within Williamson Act contracted land (California Department of Conservation 2016). The proposed project has no potential to conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, implementation of the proposed project would not impact agriculture resources.

Forestry Resources

No portion of the project site or the immediate vicinity is zoned or designated as forest lands, timberlands, or timberland production. As such, the proposed project would not result in a conflict with existing zoning or cause the need for a zone change. Therefore, implementation of the proposed project would not impact forestry resources.

Energy

The use of energy associated with the project includes both construction and operational activities. Construction activities consume energy through the use of heavy construction equipment and truck and worker traffic. The proposed project will use energy-conserving construction equipment, including standard mitigation measures for construction combustion equipment recommended in the Imperial County Air Pollution Control District (ICAPCD) CEQA Air Quality Handbook (ICAPCD 2017). The use of better engine technology, in conjunction with the ICAPCD’s standard mitigation measures will reduce the amount of energy used for the project.

Implementation and operation of the proposed project would promote the use of renewable energy and contribute incrementally to the reduction in demand for fossil fuel use for electricity-generating purposes. The project would generate renewable energy resources and is considered a beneficial effect. Based on these considerations, the proposed project would not result in significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

The project will help California meet its Renewable Portfolio Standard of 50 percent of retail electricity sales from renewable sources by the end of 2030. The electricity generation process associated with the project would utilize solar technology to convert sunlight directly into electricity. Solar PV technology is consistent with the definition of an "eligible renewable energy resource" in Section 399.12 of the California Public Utilities Code and the definition of "in-state renewable electricity generation facility" in Section 25741 of the California Public Resources Code (PRC). The proposed project would not conflict with or obstruct a state or local plan for renewable energy of energy efficiency. The proposed project would result in a less than significant impact related to energy.

Hazards and Hazardous Materials

Construction of the proposed project will involve the limited use of hazardous materials, such as fuels and greases to fuel and service construction equipment. No extremely hazardous substances are anticipated to be produced, used, stored, transported, or disposed of as a result of project construction. No operations and maintenance facilities, or habitable structures are proposed on-site. Operation of the project will be conducted remotely. Regular, routine maintenance of the project may result in the potential to handle hazardous materials. However, the hazardous materials handled on-site would be limited to small amounts of everyday use cleaners and common chemicals used for maintenance. The applicant will be required to comply with State laws and County Ordinance restrictions, which regulate and control hazardous materials handled on-site. Such hazardous wastes would be transported off-site for disposal according to applicable State and County restrictions and laws governing the disposal of hazardous waste during construction and operation of the project. Based on these considerations, a less than significant impact would occur.

The project site is not located within 0.25 mile of an existing or proposed school. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No impact would occur.

Based on a review of the Cortese List conducted in November 2019, the project site is not listed as a hazardous materials site. Therefore, the proposed project would not create a significant hazard to the public or the environment and no impact would occur.

The project site is not located within two miles of a public airport or public use airport. Therefore, the proposed project would not result in airport hazards for people residing or working in the project area and no impact would occur.

The proposed project is not expected to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The project applicant will be required, through the conditions of approval, to prepare a street improvement plan for the project that will include emergency access points and safe vehicular travel. In addition, local building codes would be followed to minimize flood, seismic, and fire hazard. Therefore, the proposed project would result in a less than significant impact associated with the possible impediment to emergency plans.

Mineral Resources

The project site is not used for mineral resource production and the applicant is not proposing any form of mineral extraction. According to Figure 8: Imperial County Existing Mineral Resources of the Conservation and Open Space Element of the General Plan (County of Imperial 2016), no known mineral resources occur within the project site nor does the project site contain mapped mineral resources. Therefore, the proposed project would not result in the loss of availability of any known mineral resources that would be of value to the region and the residents of California nor would the proposed project result in the loss of availability of a locally important mineral resource.

Based on a review of the California Department Division of Oil, Gas, and Geothermal Resources Well Finder, there is one idle geothermal well (Well No. 02591491) located in the northwest quarter of the project parcel (California Department of Oil, Gas, and Geothermal Resources n.d). This geothermal well would be avoided by the proposed project. Implementation of the proposed project would not impact geothermal wells.

Noise and Vibration

The Imperial County Title 9 Land Use Ordinance, Division 7, Chapter 2, Section 90702.00 - Sound level limits, establishes one-hour average sound level limits for the County's land use zones. Industrial operations are required to comply with the noise levels prescribed under the general industrial zones. Therefore, the project is required to maintain noise levels below 75 decibels (dB) (averaged over one hour) during any time of day. The project would be expected to comply with the Noise Element of the General Plan which states that construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB, when averaged over an eight hour period, and measured at the nearest sensitive receptor. Construction equipment operation is also limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. on Saturdays. Compliance with Imperial County's standards for construction noise levels would result in less than significant noise impacts during project construction.

Groundborne vibration and groundborne noise could originate from earth movement during the construction phase of the proposed project. Construction of the proposed project may require post driving and vibratory rollers and has the potential to result in temporary vibration impacts on structures and humans. However, the project site is in a generally rural area and surrounded by relatively undisturbed desert lands. Sensitive receptors located within one mile of the project site consist of a few scattered rural homes west of the site. There are no sensitive receptors within 1,500 feet of the project site boundary. The project would be expected to comply with all applicable requirements for long-term operation, as well as with measures to reduce excessive groundborne vibration and noise to ensure that the project would not expose persons or structures to excessive groundborne vibration. No further analysis is warranted.

The project site is not located within two miles of a public airport or private airstrip. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels and no impact would occur.

Population and Housing

Development of housing is not proposed as part of the project. No full-time employees are required to operate the project. The project facility will be monitored remotely. It is anticipated that maintenance of the facility will require minimal site presence to perform periodic visual inspections and minor repairs. On intermittent occasions, the presence of additional workers may be required for repairs or

replacement of equipment and panel cleaning; however, due to the nature of the facility, such actions will likely occur infrequently. Therefore, the proposed project would not result in a substantial growth in the area, as the number of employees required to operate and maintain the facility is minimal.

No housing exists within the project site and no people reside within the project site. Therefore, the proposed project would not displace substantial numbers of people or housing, necessitating the construction of replacement housing elsewhere. The proposed project would result in no impact to population and housing.

Public Services

Fire Protection. Fire protection and emergency medical services in the area are provided by the Imperial County Fire Department. The project site is located in the unincorporated area of Imperial County. According to the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the potential for a major fire in the unincorporated areas of the County is generally low. Both the access and service roads (along the perimeter of the project facility) would have turnaround areas to allow clearance for fire trucks per fire department standards (70 feet by 70 feet, and 20-foot-wide access road). While the proposed project may result in an increase in demand for fire protection service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered fire protection 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. Based on these considerations, the project would not result in a need for fire facility expansion and a less than significant impact would occur.

Police Protection. Police protection services in the project area is provided by the Imperial County Sheriff's Department. Although the potential is low, the proposed project ~~may~~ could attract ~~vandals~~ trespassers or other ~~security risks~~ unauthorized uses. The increase in construction related traffic could temporarily increase demand on law enforcement services. However, the project site would be fenced with a 6-foot high chain link security fence topped with barbed wire and points of ingress/egress would be accessed via locked gates. In addition, periodic on-site personnel visitations for security would occur during operations and maintenance of the proposed project, thereby minimizing the need for police surveillance. While the proposed project may result in a temporary increase in demand for law enforcement service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered sheriff 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. The sheriff's department has indicated that an all-terrain vehicle would be needed in order to patrol the project site; however, the fenced and secure project site does not result in an increase in demand on law enforcement that would require existing or new facilities to be upgraded in order to maintain service ratios. Further, as conditions of approval of the project, the project applicant will be required to participate in the Imperial County Public Benefit Program for the life of this CUP and shall at all times be a party to a public benefit agreement in a form acceptable to County Counsel in order to pay for all costs, benefits, and fees associated with the approved project, and the applicant will be required to reimburse the Sheriff's Department for any investigations regarding theft on the Project site and related law enforcement. Approval of this public benefit agreement will be by the Board of Supervisors prior to the issuance of the first building permit. These potential impacts are less than significant. ~~This is considered a less than significant impact.~~

Schools. The proposed project does not include the development of residential land uses that would result in an increase in population or student generation. Construction of the proposed project would not result in an increase in student population within the Imperial County's School District since it is anticipated that construction workers would commute in during construction operations. The proposed project would have no impact on Imperial County schools.

Parks and Other Public Facilities. No full-time employees are required to operate the project. The project facility will be monitored remotely. It is anticipated that maintenance of the facility will require minimal site presence to perform periodic visual inspections and minor repairs. Therefore, substantial permanent increases in population that would adversely affect local parks, libraries, and other public facilities are not expected. The project is not expected to have an impact on parks, libraries, and other public facilities.

Recreation

The project site is not used for formal recreational purposes. Also, the proposed project would not generate new employment on a long-term basis. As such, the project would not significantly increase the use or accelerate the deterioration of regional parks or other recreational facilities. The temporary increase of population during construction that might be caused by an influx of workers would be minimal and not cause a detectable increase in the use of parks. Additionally, the project does not include or require the expansion of recreational facilities. Therefore, no impact is identified for recreation.

Utilities and Service Systems

Wastewater Facilities. The project would generate a minimal volume of wastewater during construction. During construction activities, wastewater would be contained within portable toilet facilities and disposed of at an approved site. No habitable structures are proposed on the project site, such as Operations & Maintenance (O&M) buildings. Therefore, there would be no wastewater generation from the proposed project. The proposed project would not require or result in the relocation or construction of new or expanded wastewater facilities.

Storm Water Facilities. The proposed project will involve the construction of storm water drainage control facilities within the project site as shown on Figure 2-4 Preliminary Site Plan, ~~which are identified in the project site plan~~, and included in the project impact footprint, of which environmental impacts have been evaluated. Otherwise, the project does not require expanded or new storm drainage facilities off-site (i.e., outside of the project footprint) because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events, and therefore, would not require the construction of off-site storm water management facilities. Water from solar panel washing would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious. The proposed project would not require or result in the relocation or construction of new or expanded storm water facilities beyond those proposed as part of the project and evaluated in the EIR.

Water Facilities. The proposed project is not anticipated to result in a significant increase in water demand/use during operation; however, water will be needed for solar panel washing and dust suppression. During operation, water would either be obtained from the proposed on-site groundwater well, or would be trucked to the project site from a local water source. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded water facilities.

Power, Natural Gas, and Telecommunication Facilities. The proposed project would involve construction of power facilities, and would include a fiber optic connection. These components of the project have been evaluated in the EIR and would not generate the demand for, or require or result in the relocation or construction of new or expanded electric power, natural gas, or telecommunications facilities that would in turn, result in a significant impact to the environment.

Solid Waste Facilities. Solid waste generation would be minor for the construction and operation of the project. Solid waste would be disposed of using a locally-licensed waste hauling service, most likely Allied Waste. Trash would likely be hauled to the Niland Solid Waste Site (13-AA-0009) located in Niland. The Niland Solid Waste Site has approximately 318,669 cubic yards of remaining capacity and is estimated to remain in operation through 2056 (CalRecycle n.d.). Therefore, there is ample landfill capacity in the County to receive the minor amount of solid waste generated by construction and operation of the project.

Additionally, because the proposed project would generate solid waste during construction and operation, the project would be required to comply with state and local requirements for waste reduction and recycling; including the 1989 California Integrated Waste Management Act and the 1991 California Solid Waste Reuse and Recycling Access Act of 1991. Also, conditions of the CUP would contain provisions for recycling and diversion of Imperial County's construction waste policies.

Further, when the proposed project reaches the end of its operational life, the components would be decommissioned and deconstructed. When the project concludes operations, much of the wire, steel, and modules of which the system is comprised would be recycled to the extent feasible. The project components would be deconstructed and recycled or disposed of safely, and the site could be converted to other uses in accordance with applicable land use regulations in effect at the time of closure. Commercially reasonable efforts would be used to recycle or reuse materials from the decommissioning. All other materials would be disposed of at a licensed facility. Therefore, a less than significant impact is identified for this issue.

Wildfire

According to the Draft Fire Hazard Severity Zone Map for Imperial County prepared by the California Department of Forestry and Fire Protection, the project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). Therefore, no impact is identified for wildfire.

Summary of Significant Impacts and Mitigation Measures that Reduce or Avoid the Significant Impacts

Based on the analysis presented in the IS/NOP and the information provided in the comments to the IS/NOP, the following environmental topics are analyzed in this EIR:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources (includes Tribal Cultural Resources)
- Geology and Soils
- GHG Emissions
- Hydrology/Water Quality
- Land Use Planning
- Transportation/Traffic
- Utilities/Service Systems

Table ES-1 summarizes existing environmental impacts that were determined to be potentially significant, mitigation measures, and level of significance after mitigation associated with the project.

Areas of Controversy and Issues to be Resolved

Areas of Concern

Section 15123(b)(2) of the CEQA Guidelines requires that an EIR identify areas of controversy as well as issues to be resolved known to the Lead Agency, including issues raised by other agencies and the public. A primary issue associated with this solar farm project, and other solar facility projects that are proposed in the County, is the corresponding land use compatibility and fiscal/economic impacts to the County. Through the environmental review process for this project, other areas of concern and issues to be resolved include groundwater supply; relocation, modification, or reconstruction of IID facilities; and access.

Detailed analyses of these topics are included within each corresponding section contained within this document.

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
Air Quality			
Impact 3.3-1: Conflict with or obstruct implementation of the applicable air quality plan	Less than Significant	**AQ-1** **Construction Equipment.** Construction equipment shall be equipped with an engine designation of EPA Tier 2 or better (Tier 2+). A list of the construction equipment, including all off-road equipment utilized at each of the projects by make, model, year, horsepower and expected/actual hours of use, and the associated EPA Tier shall be submitted to the County Planning and Development Services Department and ICAPCD prior to the issuance of a grading permit. The equipment list shall be submitted periodically to ICAPCD to perform a NOx analysis. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure. **AQ-2** **Fugitive Dust Control.** Pursuant to ICAPCD, all construction sites, regardless of size, must comply with the requirements contained within Regulation VIII – Fugitive Dust Control Measures. Whereas these Regulation VIII measures are mandatory and are not considered project environmental mitigation measures, the ICAPCD CEQA Handbook's required additional standard and enhanced mitigation measures listed below shall be implemented prior to and during construction. ICAPCD will verify implementation and compliance with these measures as part of the grading permit review/approval process. **ICAPCD Standard Measures for Fugitive Dust (PM10) Control** • All disturbed areas, including bulk material storage, which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material, such as vegetative ground cover.	Less than Significant

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• All on-site and offsite unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering. • All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering. • The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material. • All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area. • Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line. • The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants, and/or watering.	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		ICAPCD "Discretionary" Measures for Fugitive Dust (PM10) Control • Water exposed soil only in those areas where active grading and vehicle movement occurs with adequate frequency to control dust. • Replace ground cover in disturbed areas as quickly as possible. • Automatic sprinkler system installed on all soil piles. • Vehicle speed for all construction vehicles shall not exceed 15 miles per hour on any unpaved surface at the construction site. • Develop a trip reduction plan to achieve a 1.5 average vehicle ridership for construction employees. • Implement a shuttle service to and from retail services and food establishments during lunch hours. **Standard Mitigation Measures for Construction Combustion Equipment** • Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum. • Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use.	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set). **Enhanced Mitigation Measures for Construction Equipment** To help provide a greater degree of reduction of PM emissions from construction combustion equipment, ICAPCD recommends the following enhanced measures. • Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways. • Implement activity management (e.g., rescheduling activities to reduce short-term impacts). **AQ-3** **Dust Suppression.** The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. The project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, and Fire Department access/emergency entry/exit points as approved by Fire/Office of Emergency Services [OES] Department). **AQ-4** **Dust Suppression Management Plan.** Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval. **AQ-5** **Operational Dust Control Plan.** Prior to issuance of a Certificate of Occupancy, the applicant shall submit an	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		operations dust control plan and obtain ICAPCD and ICPDS approval. ICAPCD Rule 301 Operational Fees apply to any project applying for a building permit. At the time that building permits are submitted for the proposed project, ICAPCD shall review the project to determine if Rule 310 fees are applicable to the project.	
Biological Resources			
Impact 3.4-1: Potential impacts on special-status species	Potentially Significant	**BIO-1** **Pre-Construction Plant Survey.** Prior to initiating ground disturbance, a focused survey for Harwood's milkvetch shall occur during its blooming period. A reference population shall be identified and confirmed to be blooming at the time that surveys are conducted on the project site. Should Harwood's milkvetch be present on site, project design will be evaluated to determine if modifications can be made to avoid at least 90-percent of the observed individuals or compensatory mitigation shall be provided through off-site preservation of an equivalent population. **BIO-2** **General Impact Avoidance and Minimization Measures.** The following measures will be applicable throughout the life of the project: • To reduce the potential indirect impact on migratory birds, bats and raptors, the project will comply with the APLIC 2012 Guidelines for overhead utilities, as appropriate, to minimize avian collisions with transmission facilities (APLIC 2012) • All electrical components on the project site shall be either undergrounded or protected so that there will be no exposure to wildlife and therefore no potential for electrocution.	Less than Significant

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• The Project proponent shall ~~will~~ designate a Project Biologist who shall be responsible for overseeing compliance with protective measures for the biological resources during vegetation clearing and work activities within and adjacent to areas of native habitat. The Project Biologist will be familiar with the local habitats, plants, and wildlife. The Project Biologist will also maintain communications with the Contractor to ensure that issues relating to biological resources are appropriately and lawfully managed and monitor construction. The Project Biologist will monitor activities within construction areas during critical times, such as vegetation removal, the implementation of Best Management Practices (BMP), and installation of security fencing to protect native species. The Project Biologist will ensure that all wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed. • The boundaries of all areas to be newly disturbed (including solar facility areas, staging areas, access roads, and sites for temporary placement of construction materials and spoils) will be delineated with stakes and flagging prior to disturbance. All disturbances, vehicles, and equipment will be confined to the flagged areas. • No potential wildlife entrapments (e.g., trenches, bores) will be left uncovered overnight. Any uncovered pitfalls will be excavated to 3:1 slopes at the ends to provide wildlife escape ramps. Alternatively, man-made ramps may be installed. Covered pitfalls will be covered completely to prevent access by small mammals or reptiles. • To avoid wildlife entrapment (including birds), all pipes or other construction materials or supplies will be covered or	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		capped in storage or laydown area, and at the end of each work day in construction, quarrying and processing/handling areas. No pipes or tubing of sizes or inside diameters ranging from 1 to 10 inches will be left open either temporarily or permanently. • No anticoagulant rodenticides, such as Warfarin and related compounds (indandiones and hydroxycoumarins), may be used within the project site, on off-site project facilities and activities, or in support of any other project activities. • Avoid wildlife attractants. All trash and food-related waste shall be placed in self-closing containers and removed regularly from the site to prevent overflow. Workers shall not feed wildlife. Water applied to dirt roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards to prevent the formation of puddles, which could attract wildlife. Pooled rainwater or floodwater within retention basins will be removed to avoid attracting wildlife to the active work areas. • To minimize the likelihood for vehicle strikes on wildlife, speed limits will not exceed 15 miles per hour when driving on access roads. All vehicles required for O&M must remain on designated access/maintenance roads. • Avoid night-time construction lighting or if nighttime construction cannot be avoided use shielded directional lighting pointed downward and towards the interior of the project site, thereby avoiding illumination of adjacent natural areas and the night sky. • All construction equipment used for the Project will be equipped with properly operating and maintained mufflers. • Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel hand-held	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		equipment, will be stored within secondary containment when within 50 feet of open water to the fullest extent practicable. Secondary containment will consist of a ring of sand bags around each piece of stored equipment/structure. A plastic tarp/visqueen lining with no seams shall be placed under the equipment and over the edges of the sandbags, or a plastic hazardous materials secondary containment unit shall be utilized by the Contractor. • The Contractor will be required to conduct vehicle refueling in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species. Any fuel containers, repair materials, including creosote-treated wood, and/or stockpiled material that is left on site overnight, will be secured in secondary containment within the work area and staging/assembly area and covered with plastic at the end of each work day. • In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor will ensure that all portable fuel containers are removed from the project site. • All equipment will be maintained in accordance with manufacturer's recommendations and requirements. • Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan or equivalent, Materials Safety Data Sheets, and any specifications required by other permits issued for the project.	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• The Contractor will utilize off-site maintenance and repair shops as much as possible for maintenance and repair of equipment. • If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment will be used to capture spills/leaks within all areas. Where feasible, maintenance of equipment will occur in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species. • Appropriate BMPs will be used by the Contractor to control erosion and sedimentation and to capture debris and contaminants from bridge construction to prevent their deposition in waterways. No sediment or debris will be allowed to enter the creek or other drainages. All debris from construction of the bridge will be contained so that it does not fall into channel. Appropriate BMPs will be used by the Contractor during construction to limit the spread of resuspended sediment and to contain debris. • Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard. • Firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment. • Cross-country vehicle and equipment use outside of approved designated work areas and access roads shall be prohibited to prevent unnecessary ground and vegetation disturbance.	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• Any injured or dead wildlife encountered during project-related activities shall be reported to the project biologist, biological monitor, CDFW, or a CDFW-approved veterinary facility as soon as possible to report the observation and determine the best course of action. For special-status species, the Project Biologist shall notify the County, USFWS, and/or CDFW, as appropriate, within 24 hours of the discovery. • Stockpiling of material will be allowed only within established work areas. • Actively manage the spread of noxious weeds (See Mitigation Measure BIO-5) • The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving. **BIO-3** **Worker Environmental Awareness Program.** Prior to project construction, a Worker Environmental Awareness Program shall be developed and implemented by a qualified biologist, and shall be available in both English and Spanish. Handouts summarizing potential impacts to special-status biological resources and the potential penalties for impacts to these resources shall be provided to all construction personnel. At a minimum, the education program shall including the following: • the purpose for resource protection; • a description of special status species including representative photographs and general ecology; • occurrences of USACE, RWQCB, and CDFW regulated features in the Project study area; • regulatory framework for biological resource protection and consequences if violated;	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• sensitivity of the species to human activities; • avoidance and minimization measures designed to reduce the impacts to special-status biological resources; • environmentally responsible construction practices; • reporting requirements; • the protocol to resolve conflicts that may arise at any time during the construction process; and • workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed and would be kept on record. **BIO-4** **Desert Tortoise Avoidance and Minimization** A qualified biologist shall conduct focused presence/absence surveys for Desert Tortoise for 100-percent of the project footprint pursuant to the October 19, 2019 Version of the USFWS Desert Tortoise Survey Protocol. If no live desert tortoise or sign of active desert tortoise ~~if~~ are detected, no further avoidance and minimization is required. If live desert tortoise or sign of active desert tortoise are~~is~~ detected, the project proponent shall initiate consultation with USFWS and CDFW to obtain the necessary federal and state ESA authorizations and the following avoidance, minimization and compensatory mitigation measures will be implemented: • Permanent tortoise-proof fencing shall be along the perimeter of the project site. Fencing shall be installed, inspected, and maintained according to specifications in the current USFWS *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)*. An authorized desert tortoise biologist shall conduct pre-construction clearance surveys for the project site no more than 14-days prior to the	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		initiation of fence installation. All potentially active burrows shall be identified for hand excavation. Pre-construction clearance surveys shall be repeated within the fenced impact area after fence installation is complete. If desert tortoise are observed they shall be relocated from within the work area to outside the fenced area by a permitted biologist. • The authorized biologist shall conduct desert tortoise pre-construction clearance surveys along all existing and new dirt access road alignments, and the Gen-tie alignment before any ground disturbing activities are initiated and prior to the start of construction activities each day during ground-disturbing activities and weekly thereafter. Relocate desert tortoises as necessary. Any handling of special-status species must be approved by the appropriate Federal and State agencies and be done in accordance with species-specific handling protocols. • Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of the authorized biologists with demonstrated prior experience with this species. • Inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat, before the materials are moved, buried, or capped. • Incorporate Raven Management into the Pest Control Plan (See BIO-5) • Inspect the ground under vehicles and equipment for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat. If a desert tortoise is seen, it may move on its own. If it does	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		not move within 15 minutes, an authorized biologist or biological monitor under the direction of the authorized biologist may remove and relocate the animal to a safe location. • All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages. If possible, pipes and culverts greater than 3 inches in diameter would be stored on dunnage to prevent wildlife from taking refuge in them, to the extent feasible. • To fully mitigate for habitat loss and potential take of the Mojave desert tortoise, the Applicant will provide compensatory mitigation at a ratio of 1:1 ~~3:1~~. For the purposes of this measure, the project site (i.e., footprint) means all Project areas with new direct ground disturbance during construction and operation of the Project. This includes all lands directly disturbed that will no longer provide viable long-term habitat for the Mojave desert tortoise, such as the solar field, substation and new access roads. Areas within the gen-tie line corridor where no ground disturbance will occur are not included in the area to be mitigated through compensation. Compensatory mitigation could include agency-approved payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on preservation lands; or a combination of the three. **BIO-5** **Prepare and Implement an Operation and Maintenance Worker Education Plan.** An Operation and Maintenance Worker Education Plan shall be prepared to advise personnel on general operations measures. The Worker Education Plan	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		shall be submitted to the County of Imperial Planning and Development Services Department for review and approval prior to issuance of building permits. The following provisions shall be included in the Worker Education Plan and implemented throughout the operational lifespan of the Project: Operation and maintenance personnel shall be prohibited from: • Exceeding nighttime and daytime vehicle speeds of 10 miles per hour and 25 miles per hour, respectively, within the facility, on access roads and within the Gen-Tie line corridor. Speed limit signs shall be posted throughout the project site to remind workers of travel speed restrictions. • Harming, harassing, or feeding wildlife and/or collecting special-status plant or wildlife species. • Disturbing active avian nests • Traveling (either on foot or in a vehicle) outside of the Project footprint except on public roads. • Littering on the Project area. • Allowing persons not employed at the facility to remain on site after daylight hours. • Exceeding normal nighttime operational noise or lighting levels • Bringing domestic pets and firearms to the site. The Operation and Maintenance Worker Education Plan shall require that: • All operation and maintenance vehicles and equipment park in approved designated areas only. • The project site and Gen-Tie line corridor be kept clear of trash and other litter to reduce the attraction of opportunistic	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species. • Operation and maintenance employees maintain Hazardous Materials Spill Kits on-site. All operation and maintenance staff shall be trained in how to use Hazardous Materials Spill Kits in the event of a spill. • An approved Long-Term Maintenance Plan for the retention/detention basins be developed and implemented. • Weed and Raven management shall be addressed in a project-specific pest management plan (See BIO-5) • Maintain shielding on external lighting to direct down and towards the project site and away from adjacent undeveloped land. • Workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed and would be kept on record • desert tortoise avoidance and minimization measures be implemented if desert tortoise is detected during pre-construction surveys • The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving. • Personnel are trained to avoid causing wildfires and manage them safely and promptly if necessary **BIO-6** **Burrowing Owl Avoidance and Minimization.** Take Avoidance (pre-construction) surveys for burrowing owl shall be completed prior to project construction. Surveys shall be conducted as detailed within Appendix D of the Staff Report on Burrowing Owl Mitigation (California Department of Fish and	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		Game [CDFG] 2012). If burrowing owl is not detected, construction may proceed. • If burrowing owl is identified during the non-breeding season (September 1 through January 31), then a 50 meter buffer will be established by the biological monitor. Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until a CDFW-approved exclusion plan has been implemented. The buffer distance may be reduced if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities. • If burrowing owl is identified during the breeding season (February 1 through August 31), then an appropriate buffer will be established by the biological monitor in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until young have fledged. The buffer distance may be reduced in consultation with CDFW if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities. **BIO-7** **Pre-Construction Nesting Bird Surveys.** To the extent possible, construction shall occur outside the typical avian breeding season (February 15 through September 15). If construction must occur during the general avian breeding season, a pre-construction nest survey shall be conducted within the impact area and a 500-foot (150-meter) buffer by qualified biologist no more than 7 days prior to the start of vegetation clearing and/or ground disturbing construction activities in any given area of the Project footprint. Construction crews shall coordinate with the qualified biologist at least 7 days prior to the start of construction in a given area to ensure that the construction area has been adequately surveyed. A nest is	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		defined as active once birds begin constructing or repairing the nest in readiness for egg-laying. A nest is no longer an "active nest" if abandoned by the adult birds or once nestlings or fledglings are no longer dependent on the nest. If no active nests are discovered, construction may proceed. If active nests are observed that could be disturbed by construction activities, these nests and an appropriately sized buffer (typically a 200-foot (61-meter) buffer for non-raptor species nests and at least a 500-foot (150-meter) buffer for raptor or federally listed species nests) would be avoided until the young have fledged. Final construction buffers or setback distances shall be determined by the qualified biologist in coordination with USFWS and CDFW on a case-by-case basis, depending on the species, season in which disturbance shall occur, the type of disturbance, and other factors that could influence susceptibility to disturbance (e.g., topography, vegetation, existing disturbance levels, etc.). Active nests shall be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated to the nesting birds or their young. If vegetation clearing and/or ground disturbing activities cease for 14 or more consecutive days during the nesting season in areas where suitable nesting habitat remains, repeat nesting bird surveys shall be required to ensure new nesting locations have not been established within the impact area and the defined buffers. **BIO-8** **Develop a Bird and Bat Conservation Strategy (BBCS)**. A BBCS shall be developed by the Project Applicant in coordination with the County of Imperial, USFWS, and CDFW. The BBCS will include the following components: • A description and assessment of the existing habitat and avian and bat species;	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• An avian and bat risk assessment and specific measures to avoid, minimize, reduce, or eliminate avian and bat injury or mortality during all phases of the project. • A post-construction monitoring plan that will be implemented to assess impacts on avian and bat species resulting from the Project. • The post-construction monitoring plan will include a description of standardized carcass searches, scavenger rate (i.e., carcass removal) trials, searcher efficiency trials, and reporting. Statistical methods will be used to estimate Project avian and bat fatalities if sufficient data is collected to support statistical analysis. • An injured bird response plan that delineates care and curation of any and all injured birds. • A nesting bird management strategy to outline actions to be taken for avian nests detected within the impact footprint during operation of the Project. • A conceptual adaptive management and decision-making framework for reviewing, characterizing, and responding to monitoring results. • Monitoring studies following commencement of commercial operation of each CUP area. Monitoring results will be reviewed annually by the Applicant and the County of Imperial, in consultation with CDFW and USFWS, to inform adaptive management responses. During Project construction, incidental avian carcasses or injured birds found during construction shall be documented. Should a carcass be found by Project personnel, the carcass shall be photographed, the location shall be marked, the carcass shall not be moved, and a qualified biologist shall be contacted to examine the carcass. When a carcass is	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		detected, the following data shall be recorded (to the extent possible): observer, date/time, species or most precise species group possible, sex, age, estimated time since death, potential cause of death or other pertinent information, distance and bearing to nearest structure (if any) that may have been associated with the mortality, location (recorded with Global Positioning System), and condition of carcass. • If any federal listed, state listed or fully protected avian carcasses or injured birds are found during construction or post-construction monitoring, the Project Applicant shall notify USFWS and CDFW within 24 hours via email or phone and work with the resource agencies to determine the appropriate course of action for these species. For such listed species, the CUP owner shall obtain or retain a biologist with the appropriate USFWS Special Purpose Utility Permit(s) and CDFW Scientific Collecting Permit(s) to collect and salvage all dead and injured birds, and store/curate them in freezers for later disposition and analysis. **BIO-9** **Pre-Construction Surveys for American Badger.** Preconstruction surveys shall be conducted by a qualified biologist for the presence of American badger dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for American badger, which include desert scrub habitats. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the project site disturbed. If potential dens are observed and avoidance is feasible, the following buffer distances shall be established prior to construction activities: • American badger potential den: 30 feet.	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• American badger active den: 100 feet. • American badger natal den: 500 feet. • If avoidance of the potential dens is not possible, the following measures are required to avoid potential adverse effects to the American badger • Outside the reproductive season defined as February 1 through September 30 for American badger if the qualified Lead Biologist determines through camera monitoring for three consecutive days that potential dens are inactive, the biologist shall excavate these dens by hands with a shovel to prevent American badgers from re-using them during construction. • Outside of the reproductive season defined as February 1 through September 30 for American badger if the Lead Biologist determines that potential dens may be active, an onsite passive relocation program shall be implemented. This program shall consist of excluding American badgers from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for seven days to confirm usage has discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that American badgers have stopped using the dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent use during construction.	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
Impact 3.4-2: Potential impacts on riparian habitat or sensitive vegetation	Potentially Significant	**BIO-10** **Compensatory Mitigation for Riparian Woodland and Ephemeral Wash.** Following the completion of project construction, Palo Verde- Ironwood Woodland will be created, enhanced and or conserved within the undeveloped portions of the project site at a ratio of 3:1 (i.e., 3 acres created or enhanced for each acre impacted)by permanent or temporary project activities). Permanent impacts to jurisdictional waters and wetlands shall be mitigated at a minimum 1:1 ratio either through on-site and/or off-site re-establishment, enhancement and conservation of jurisdictional waters or through an approved-mitigation bank or in lieu fee program, if one is available. The type of mitigation, mitigation location and the final mitigation ratios will be established during the permit process for the Project's USACE Section 404 permit, the RWQCB Section 401 Water Quality Certification, and a CDFW Streambed Alteration Agreement~~.~~, as applicable. **BIO-11** **Develop and Implement a Pest Management Plan.** The Project shall develop and implement a Pest Management Plan that will reduce negative impacts to surrounding (not necessarily adjacent) farmland during construction, operation and reclamation. The Plan shall include: • Methods for Preventing the Introduction and Spread of pests, including weeds. • Monitoring methods for all agricultural pests and weeds with potential to adversely impact adjacent native habitat (Species on California Invasive Plants Council Inventory rated as Moderately to Highly Invasive) to including insects, vertebrates, weeds, and pathogens.	Less than Significant

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• Eradication and Control Methods All treatments must be performed by a qualified applicator or a licensed pest control business. o "Control" means to reduce the population of common pests below economically damaging levels, and includes attempts to exclude pests before infestation, and effective control methods after infestation. o Effective control methods may include physical/mechanical removal, biocontrol, cultural control, or chemical treatments. o Use of "permanent" soil sterilants to control weeds or other pests is prohibited due to the fact that this would interfere with reclamation. • Notification Requirements: o Notify the Agricultural Commissioner's office immediately regarding any suspected exotic/invasive pest species as defined by the California Department of Food Agriculture (CDFA) and the USDA. o Request a sample be taken by the Agricultural Commissioner's Office of a suspected invasive species. • Eradication of exotic pests will be done under the direction of the Agricultural Commissioner's Office and/or CDFA. • Obey all pesticide use laws, regulations, and permit conditions.	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• Allow access by Agricultural Commissioner staff for routine visual and trap pest surveys, compliance inspections, eradication of exotic pests, and other official duties. • Ensure that all project employees that handle pest control issues are appropriately trained and certified, that all required records are maintained and available for inspection, and that all permits and other required legal documents are current. • Maintain records of pests found and treatments or pest management methods used. Records should include the date, location/block, project name (current and previous if changed), and methods used. For pesticides include the chemical(s) used, EPA Registration numbers, application rates, etc. A pesticide use report may be used for this. • Reporting Methods o Submit a report of monitoring, pest finds, and treatments, or other pest management methods to the Agricultural Commissioner quarterly within 15 days after the end of the previous quarter, and upon request. o The report is required even if no pests were found or treatment occurred. It may consist of a copy of all records for the previous quarter, or may be a summary letter/report as long as the original detailed records are available upon request.	
Impact 3.4-4: Potential impacts on the movement of any native resident or migratory fish and wildlife species or with established	Potentially Significant	Implement Mitigation Measures BIO-5 and BIO-8 (as described above).	Less than Significant

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
native resident or migratory wildlife corridors			
Cultural Resources			
Impact 3.5-2: Impact on archaeological resources	Potentially Significant	**CR-1** Pursuant to CEQA Guidelines §15064.5(f), in the event that previously unidentified unique archaeological resources are encountered during construction or operational repairs, archaeological monitors will be authorized to temporarily divert construction work within 100 feet of the area of discovery until significance and the appropriate mitigation measures are determined by a qualified archaeologist familiar with the resources of the region. Applicant shall notify the County within 24 hours. Applicant shall provide contingency funding sufficient to allow for implementation of avoidance measures or appropriate mitigation. **CR-2** In the event of the discovery of previously unidentified archaeological materials, the contractor shall immediately cease all work activities within approximately 100 feet of the discovery. After cessation of excavation, the contractor shall immediately contact the Imperial County Department of Planning and Development Services. Except in the case of cultural items that fall within the scope of the Native American Grave Protection and Repatriation Act, the discovery of any cultural resource within the project area shall not be grounds for a "stop work" notice or otherwise interfere with the project's continuation except as set forth in this paragraph. In the event of an unanticipated discovery of archaeological materials during construction, the applicant shall retain the services of a qualified professional archaeologist, meeting the Secretary of the Interior's Standards for a Qualified Archaeologist, to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of	Less than Significant

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures		Significance After Mitigation
			the find. If the qualified archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the applicant shall implement an archaeological data recovery program.	
Impact 3.5-3: Impact on Human Remains	Potentially Significant	**CR-3**	In the event that evidence of human remains is discovered, construction activities within 200 feet of the discovery will be halted or diverted and the Imperial County Coroner will be notified (Section 7050.5 of the HSC). If the Coroner determines that the remains are Native American, the Coroner will notify the NAHC, which will designate a MLD for the project (Section 5097.98 of the PRC). The designated MLD then has 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains (AB 2641). If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a document with the county in which the property is located (AB 2641).	Less than Significant
Geology and Soils				
Impact 3.6-2: Possible risks to people and structures caused by seismic ground shaking.	Potentially Significant	**GEO-1**	**Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.** Facility design for all project components shall comply with the site-specific design recommendations as provided by a licensed geotechnical or civil engineer to be retained by the project applicant. The final geotechnical and/or civil engineering report shall address and make recommendations on the following:	Less than Significant

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• Site preparation • Soil bearing capacity • Appropriate sources and types of fill • Potential need for soil amendments • Structural foundations • Grading practices • Soil corrosion of concrete and steel • Erosion/winterization • Seismic ground shaking • Liquefaction • Expansive/unstable soils In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include subsurface testing of soil and groundwater conditions, and shall determine appropriate foundation designs that are consistent with the version of the CBC that is applicable at the time building and grading permits are applied for. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicant. The final geotechnical and/or civil engineering report shall be submitted to Imperial County Public Works Department, Engineering Division for review and approval prior to issuance of building permits.	
Impact 3.6-5: Substantial soil erosion or the loss of topsoil	Potentially Significant	Implement Mitigation Measure GEO-1 and Mitigation Measure HYD-1.	Less than Significant
Impact 3.6-9: Impact on paleontological resources	Potentially Significant	**GEO-2** **Paleontological Resources.** In the event that unanticipated paleontological resources or unique geologic resources are	Less than Significant

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures		Significance After Mitigation
			encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the project site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.	
Hydrology/Water Quality				
Impact 3.8-1: Violation of water quality standards	Potentially Significant	**HYD-1**	**Prepare SWPPP and Implement BMPs Prior to Construction and Site Restoration.** The project applicant or its contractor shall prepare a SWPPP specific to the project and be responsible for securing coverage under SWRCB's NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ). The SWPPP shall identify specific actions and BMPs relating to the prevention of stormwater pollution from project-related construction sources by identifying a practical sequence for site restoration, BMP implementation, contingency measures, responsible parties, and agency contacts. The SWPPP shall reflect localized surface hydrological conditions and shall be reviewed and approved by the appropriate agency prior to commencement of work and shall be made conditions of the contract with the contractor selected to build and	Less than Significant

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		decommission the project. The SWPPP shall incorporate control measures in the following categories: • Soil stabilization and erosion control practices (e.g., hydroseeding, erosion control blankets, mulching) • Sediment control practices (e.g., temporary sediment basins, fiber rolls) • Temporary and post-construction on- and off-site runoff controls • Special considerations and BMPs for water crossings and drainages • Monitoring protocols for discharge(s) and receiving waters, with emphasis place on the following water quality objectives: dissolved oxygen, floating material, oil and grease, potential of hydrogen (pH), and turbidity • Waste management, handling, and disposal control practices • Corrective action and spill contingency measures • Agency and responsible party contact information • Training procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP The SWPPP shall be prepared by a Qualified SWPPP Practitioner and/or Qualified SWPPP Developer with BMPs selected to achieve maximum pollutant removal and that represent the best available technology that is economically achievable. Emphasis for BMPs shall be placed on controlling discharges of oxygen-depleting substances, floating material, oil and grease, acidic or caustic substances or compounds, and turbidity. BMPs for soil stabilization and erosion control practices	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		and sediment control practices will also be required. Performance and effectiveness of these BMPs shall be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (inadvertent petroleum release) is required to determine adequacy of the measure. **HYD-2** **Incorporate Post-Construction Runoff BMPs into Project Drainage Plan**. The project Drainage Plan shall adhere to the County's Engineering Guidelines Manual, IID "Draft" Hydrology Manual, or other recognized source with approval by the County Engineer to control and manage the on- and off-site discharge of stormwater to existing drainage systems. Infiltration basins will be integrated into the Drainage Plan to the maximum extent practical. The Drainage Plan shall provide both short- and long-term drainage solutions to ensure the proper sequencing of drainage facilities and management of runoff generated from project impervious surfaces as necessary.	
Impact 3.8-8: Conflict with water quality control plan or sustainable groundwater management plan	Potentially Significant	Implement Mitigation Measures HYD-1 through HYD-2	Less than Significant

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Statement of Overriding Considerations

CEQA Guidelines Section 15093 requires the Lead Agency to balance, as applicable, the economic, legal, social, and technological, or other benefits of the project against its unavoidable environmental risks when determining whether to approve the project. No significant and unmitigated impacts have been identified for the proposed project; therefore, the County would not be required to adopt a Statement of Overriding Considerations pursuant to Section 15093 for this project.

Project Alternatives

Alternatives Considered but Rejected

Alternative Site

Section 15126.6(f)(2) of the CEQA Guidelines addresses alternative locations for a project. The key question and first step in the analysis is whether any of the significant effects of the proposed project would be avoided or substantially lessened by constructing the proposed project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR. Further, CEQA Guidelines Section 15126.6(f)(1) states that among the factors that may be taken into account when addressing the feasibility of alternative locations are whether the project proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent).

With respect to the proposed project, no significant, unmitigable impacts have been identified. With implementation of proposed mitigation, all potentially significant environmental impacts will be mitigated to a level of less than significant.

The Applicant investigated the opportunity to develop the project site in the general project area and determined that the currently proposed project site is the most suitable for development of the solar facility. An alternative site was considered and is depicted on Figure 7-1 (Chapter 7, Alternatives). This site is located southeast of the project site on privately-owned agricultural lands. The site, located on APN 025-600-027, comprises approximately 126 acres of land.

However, this site was rejected from detailed analysis for the following reasons:

- The alternative location site, as compared to the proposed project site, is located on agricultural land. According to the farmland maps prepared by the California Department of Conservation (2017), the alternative site is designated as Prime Farmland and Farmland of Statewide Importance. Therefore, compared to the proposed project, the alternative site would result in potentially significant impacts associated with conversion of Important Farmland to non-agricultural uses.
- Burrowing owls were not present on the project site during the biological surveys. As the proposed project is not within the IID Service District, no IID canals or drains (which are very attractive to burrowing owls) are present within the project site. Compared to the proposed project site, the alternative site is located entirely on agricultural fields and surrounded on all sides by agricultural fields. Agricultural fields provide habitat for burrowing owl. Irrigation canals and drains are commonly used as burrowing nesting sites in the Imperial Valley. It is anticipated that the potential for burrowing owl to occur on the alternative site during construction and operations is greater compared to the proposed project site.

- No significant, unmitigated impacts have been identified for the proposed project. Construction and operation of the proposed project at this alternative location would likely result in similar impacts associated with the proposed project, or additional impacts (conversion of Important Farmland to non-agricultural uses) that are currently not identified for the project at the currently proposed location.

As such, the County considers this alternative location infeasible and rejects further analysis of this alternative because of the factors listed above.

Original Site Plan Submittal

The project applicant originally proposed to construct and operate a 40 MW solar energy facility on approximately 300 acres within the western portion of the larger 640-acre project site parcel. The originally-proposed project was contemplated to be constructed in two phases (see Figure 7-2 in Chapter 7, Alternatives). Each phase would have produced 20 MW of energy and cover approximately 146 acres. A Power Purchase Agreement for 20 MW to San Diego Gas & Electric was secured by the project applicant for the first phase of the project. The second 20 MW phase would not be constructed until the time that an additional PPA is secured. The remaining portion of the property would remain undeveloped in order to protect sensitive environmental resources. (Note: The project was subsequently modified to a 20 MW solar energy facility on an approximately 100-acre site as described in Section 2 Project Description).

Although this alternative would result in an increased power production capacity and greater GHG emission offset compared to the proposed project, the County rejects the Original Site Plan Submittal from further analysis due to increased biological resources impacts, increased jurisdictional waters impacts, and potential disturbance to known and unknown cultural resources.

As shown on Figure 3.4-1 (Section 3.4, Biological Resources), arrow weed thicket, which is recognized by CDFW as a sensitive vegetation type, is known to occur in the southwest portion of the project site (Phase I development area as shown on 7-2). As shown on Figure 3.4-2 (Section 3.4, Biological Resources), the Phase I development area contains numerous braided ephemeral drainage channels, which could be considered federally and state jurisdictional. Based on this context, the Original Site Plan Submittal has the potential to impact a sensitive vegetation community and increased impacts on potentially jurisdictional waters compared to the proposed project. Further this alternative has the potential to disturb portions of a known cultural resource site.

Alternatives Evaluated

The environmental analysis for the proposed project evaluated the potential environmental impacts resulting from implementation of the proposed project, as well as alternatives to the project. The alternatives include: Alternative 1: No Project/No Development; Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands; Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands; and Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative. A detailed discussion of the alternatives considered is included in Chapter 7. Table ES-2 summarizes the impacts resulting from the proposed project and the identified alternatives.

Alternative 1: No Project/No Development Alternative

The CEQA Guidelines require analysis of the No Project Alternative (PRC Section 15126). According to Section 15126.6(e), "the specific alternative of 'no project' shall also be evaluated along with its

impacts. The 'no project' analysis shall discuss the existing conditions at the time the Notice of Preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."

The No Project/No Development Alternative assumes that the project, as proposed, would not be implemented and the project site would not be developed.

The No Project/No Development Alternative would not meet a majority of the objectives of the project. Additionally, the No Project/No Development Alternative would not help California meet its statutory and regulatory goal of increasing renewable power generation, including GHG reduction goals of Assembly Bill (AB) 32 (California Global Warming Solutions Act of 2006).

Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands

The purpose of this alternative is to develop the proposed project within the existing boundary of County's Renewal Energy (RE) Overlay Zone. The RE Overlay Zone is concentrated in areas determined to be the most suitable for the development of renewable energy facilities while minimizing the impact on other established areas.

The Alternative 2 project site is located entirely within the RE Overlay Zone. Alternative 2 would involve the construction and operation of a 20 MW solar energy facility and associated infrastructure on approximately 100 acres within a 130-acre parcel (APN 034-260-036) located approximately 4 miles northeast of the Dixieland area in unincorporated Imperial County. The Alternative 2 project site is designated as Agriculture under the County's General Plan and zoned A-3 (Heavy Agriculture).

Similar to the proposed project, Alternative 2 would require approval of a CUP to allow for the construction and operation of a solar project. Compared to the proposed project, the Alternative 2 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. The A-3 zone allows a maximum height limit of 120 feet for non-residential structures. No Variance would be required under this alternative because the proposed height of the transmission towers (70 feet) would not exceed 120 feet.

Alternative 2 would meet most of the basic objectives of the proposed project. However, this alternative would result in greater impacts for the following environmental issue areas as compared to the proposed project: aesthetics and visual resources, biological resources, cultural resources, and tribal cultural resources. Because the Alternative 2 site is located on agricultural lands, this alternative would result in the conversion of agricultural land to non-agricultural uses. Compared to the proposed project, this alternative would result in additional impacts (conversion of agricultural land to non-agricultural uses) that are currently not identified for the project at the currently proposed location. Further, the project applicant does not own, or otherwise control this property.

Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands

The purpose of this alternative is to develop the proposed project within the existing boundary of the County's RE Overlay Zone. The Alternative 3 project site is located entirely within the RE Overlay Zone. Alternative 3 would involve the construction and operation of a 20 MW solar energy facility and associated infrastructure on approximately 100 acres within a 161-acre parcel (APN 021-190-003) located approximately 0.5 mile south of Slab City. The Alternative 3 project site is located on undeveloped desert land. Existing transmission lines traverse the southwest corner of the project site.

The Alternative 3 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. The Alternative 3 project site is designated as Recreation under the County's General Plan and zoned General Agricultural with a renewable energy overlay (A-2-RE).

Similar to the proposed project, Alternative 3 will require approval of a CUP to allow for the construction and operation of a solar project. Compared to the proposed project, the Alternative 3 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. The A-2-RE zone allows a maximum height limit of 120 feet for non-residential structures. No Variance would be required under this alternative because the proposed height of the transmission towers (70 feet) would not exceed 120 feet.

Alternative 3 would meet most of the basic objectives of the proposed project. However, this alternative would result in greater impacts for the following environmental issue areas as compared to the proposed project: aesthetics and visual resources, cultural resources, tribal cultural resources, and hydrology/water quality. Further, the project applicant does not own, or otherwise control this property.

Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative

This alternative would involve the development of a number of geographically distributed small to medium solar PV systems (100 kilowatts to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities throughout Imperial County. Under this alternative, no new land would be developed or altered. Depending on the type of solar modules installed and the type of tracking equipment used, a similar or greater amount of acreage (i.e., greater than 100 acres of total rooftop area) may be required to attain the proposed project's capacity of 20 MW of solar PV generating capacity. This alternative would involve placement of PV structures, transmission lines, and development of additional supporting facilities, such as switching stations and substations at various locations throughout the County. This alternative assumes that rooftop development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations.

This alternative would require hundreds of installation locations across Imperial County, many of which would require approval of discretionary actions, such as design review, CUPs, or zone variances depending on local jurisdictional requirements. Similar to the proposed project, this alternative would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. This alternative would involve the construction of transmission lines and development of additional supporting facilities, such as switching stations and substations at various locations throughout the County to distribute the energy.

Rooftop PV systems exist in small areas throughout California. Larger distributed solar PV installations are becoming more common. An example of a distributed PV system is 1 MW of distributed solar energy installed by Southern California Edison on a 458,000 square-foot industrial building in Chino, California.[1]

Similar to utility-scale PV systems, the acreage of rooftops or other infrastructure required per MW of electricity produced is wide ranging, which is largely due to site-specific conditions (e.g., solar

[1] http://newsroom.edison.com/releases/california-regulators-approve-southern-california-edison-proposal-to-create-nations-largest-solar-panel-installation-program

insolation levels, intervening landscape or topography, PV panel technology, etc.). Based on SCE's use of 458,000-square feet for 1 MW of energy, approximately 9,160,000 square feet (approximately 210 acres) would be required to produce 20 MW.

As shown on Table ES-2, implementation of Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative would result in reduced impacts for the following environmental issue areas as compared to the proposed project: hydrology/water quality. Overall, this alternative would result in greater impacts related to aesthetics, air quality, biological resources, cultural resources, tribal cultural resources, and utilities and service systems.

Environmentally Superior Alternative

The No Project/No Development Alternative would be considered the environmentally superior alternative, since it would eliminate all of the significant impacts identified for the project. However, CEQA Guidelines Section 15126.6(e)(2) states that "if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." As shown in Table ES-2, Alternative 2 and Alternative 3 would both result in less impacts on Land Use and Planning because they are located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. No Variance would be required under either of these alternatives because the proposed height of the transmission towers (70 feet) would not exceed the 120 feet height limit of non-residential structures in the A-2-RE Zone or A-3 Zone. However, compared to the proposed project, the Alternative 2 site is located on agricultural lands and would result in the conversion of agricultural land to non-agricultural uses. Compared to the proposed project, this alternative would result in additional impacts (conversion of agricultural land to non-agricultural uses) that are currently not identified for the project at the currently proposed location. Based on these considerations, Alternative 3 is considered the Environmentally Superior Alternative.

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Table ES-2. Comparison of Alternative Impacts to Proposed Project

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands	Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands	Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative
Aesthetics and Visual Resources	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact
Air Quality	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact
Biological Resources	Less than Significant with Mitigation	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact (Avoid)	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact
Cultural Resources	Less than Significant with Mitigation	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact (Avoid)	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact

Table ES-2. Comparison of Alternative Impacts to Proposed Project

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands	Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands	Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative
Geology and Soils	Less than Significant with Mitigation	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact (Avoid)	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Similar Impact
GHG Emissions	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact
Hydrology/ Water Quality	Less than Significant with Mitigation	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact (Avoid)	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Less Impact
Land Use/Planning	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact

Table ES-2. Comparison of Alternative Impacts to Proposed Project

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands	Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands	Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative
Transportation/ Traffic	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact
Utilities/Service Systems	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Greater Impact

Notes:
CEQA=California Environmental Quality Act; GHG=greenhouse gas

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1 Introduction

This environmental impact report (EIR) has been prepared to meet the requirements of the California Environmental Quality Act (CEQA) for purposes of evaluating the potential environmental impacts, mitigation measures, and alternatives associated with the proposed Wister Solar Energy Facility Project. This EIR describes the existing environment that would be affected by, and the environmental impacts which could potentially result from the construction and operation of the proposed project as described in detail in Chapter 3.0 of this EIR.

1.1 Overview of the Proposed Project

The proposed Wister Solar Energy Facility Project is located on Assessor Parcel Number (APN) 003-240-001. The proposed solar energy facility consists of three primary components: 1) solar energy generation equipment and associated facilities including a substation and access roads (herein referred to as "solar energy facility"); 2) gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing IID 92 kV "K" line; and, 3) an on-site wireless communication system or off-site fiberoptic cable.

The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres of privately-owned land north of Niland. The proposed project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92 kilovolt (kV) substation, which will be tied directly to the Imperial Irrigation District's (IID) 92 kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92kV "K" line.

An on-site communication system or ~~A proposed~~ an off-site fiberoptic line that would extend from the proposed on-site substation would be connected with the existing Niland Substation approximately two miles to the south, which would then be added to connect the proposed on-site substation to the region's telecommunications system. The length of the proposed fiber optic telecommunications cable route would be approximately two miles.

1.1.1 Agency Roles and Responsibilities

This section identifies and summarizes federal, state, and local laws, policies, and regulations that are applicable to the project.

County of Imperial

Implementation of the project would involve the following approvals by the County of Imperial:

1. **Approval of Conditional Use Permit (CUP) – Solar Energy Facility.** Implementation of the project would require the approval of a CUP by the County to allow for the construction and operation of the proposed solar energy facility project. The project site is located on one privately-owned legal parcel (APN No. 003-240-001) zoned Open Space/Preservation with a Geothermal Overlay (S-2-G). Pursuant to Title 9, Division 5, Chapter 19, the following

uses are permitted in the S-2 zone subject to approval of a CUP from Imperial County: *Major facilities relating to the generation and transmission of electrical energy provide[d] such facilities are not under State or Federal law, to [be] approved exclusively by an agency, or agencies of the State or Federal government, and provided such facilities shall be approved subsequent to coordination review of the Imperial Irrigation District for electrical matters. Such uses shall include but be limited to the following:*

- *Electrical generation plants*
- *Facilities for the transmission of electrical energy (100-200 kV)*
- *Electrical substations in an electrical transmission system (500 kv/230 kv/161 kV)*
- *Communication Towers: including radio, television, cellular, digital, along with the necessary support equipment such as receivers, transmitters, antennas, satellite dishes, relays, etc.*

2. **Approval of CUP – Groundwater Well.** Pursuant to Title 9 Division 21: Water Well Regulations, §92102.00, the Applicant will be required to obtain a CUP for the proposed on-site groundwater well. As required by §92102.00, no person shall (1) drill a new well, (2) activate a previously drilled but unused well, (unused shall mean a well or wells that have not been used for a 12 month period) by installing pumps, motors, pressure tanks, piping, or other equipment necessary or intended to make the well operational, (3) increase the pumping capacity of a well, or (4) change the use of a well, without first obtaining a CUP through the County Planning & Development Services Department.
3. **General Plan Amendment.** An amendment to the County's General Plan, Renewable Energy and Transmission Element is required to implement the proposed project. CUP applications proposed for specific renewable energy projects not located in the RE Overlay Zone would not be allowed without an amendment to the Renewal Energy (RE) Overlay Zone. APN No. 003-240-001 (in which the solar energy facility will be located) is immediately adjacent to, but outside of the RE Overlay Zone. Therefore, the applicant is requesting a General Plan Amendment to include/classify APN No. 003-240-001, into the RE Overlay Zone. No change in the underlying general plan land use is proposed.
4. **Zone Change.** The project site (APN No. 003-240-001) is located immediately adjacent to, but outside of the RE Overlay Zone; therefore, the applicant is requesting a zone change to include/classify APN No. 003-240-001 (which includes the solar energy facility) into the RE Overlay Zone.
5. **Variance.** A Variance is required to exceed the height limit for transmission towers within the S-2 zone. The existing S-2 zone allows a maximum height limit of 40 feet, whereas implementation of the project may involve the construction of transmission towers of up to 70 feet in height. Therefore, a variance for any structure exceeding the existing maximum height limit of 40 feet would be required.
6. **Certification of the EIR.** After the required public review for the Draft EIR, the County will respond to written comments, edit the document, and produce a Final EIR to be certified by the Planning Commission and Board of Supervisors prior to making a decision on the project.

Subsequent ministerial approvals may include, but are not limited to:

- Grading and clearing permits
- Building permits
- Reclamation plan
- Encroachment permits
- Transportation permit(s)

Other Agencies Reviews and/or Consultations

The following agencies may be involved in reviewing and/or consultations with the project proponent as it relates to construction of the project:

Federal

UNITED STATES FISH AND WILDLIFE SERVICE

- The United States Fish and Wildlife Service (USFWS) enforces compliance with regulations related to special-status species or their habitat as required under the Federal Endangered Species Act (ESA).

UNITED STATES ARMY CORPS OF ENGINEERS

- Section 404 Permit (Clean Water Act [CWA]). The CWA establishes a program to regulate the discharge of dredge and fill material into waters of the U.S. including wetlands. Activities regulated under this program include fills for development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and airports), and conversion of wetlands to uplands for farming and forestry. Either an individual 404b permit or authorization to use an existing USACE Nationwide Permit will need to be obtained if any portion of the construction requires fill into a river, stream, or stream bed that has been determined to be a jurisdictional waterway.

State

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE (TRUSTEE AGENCY)

- The California Department of Fish and Wildlife (CDFW) is a Trustee Agency and enforces compliance with regulations related to California special-status species or their habitats as required under the California Endangered Species Act (CESA).

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

- **National Pollution Discharge Elimination System Construction General Permit Order No. 2009-009-DWQ.** Requires the applicant to file a public Notice of Intent to discharge stormwater and to prepare and implement a stormwater pollution prevention plan (SWPPP).
- **Jurisdictional Waters.** Agencies and/or project proponents must consultant with the California Regional Water Quality Control Board (RWQCB) regarding, when applicable, regarding compliance with the CWA Section 401 Water Quality Certification or permitting under California Porter-Cologne Act.

Local

IMPERIAL COUNTY FIRE DEPARTMENT

- Review as part of the EIR process including the final design of the proposed fire system.

IMPERIAL IRRIGATION DISTRICT

- For any approvals related to the fiber optic cable.

IMPERIAL COUNTY AIR POLLUTION CONTROL DISTRICT

- Review as part of the EIR process regarding consistency with the Imperial County Air Pollution Control District (ICAPCD) CEQA Air Quality Handbook, the final "Modified" 2009 8-hour Ozone Air Quality Management Plan, the State Implementation Plan for particulate matter less than 10 microns in diameter (PM_{10}) in the Imperial Valley, the State Implementation Plan (SIP) for particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and verification of Rule 801 compliance.

1.2 Relationship to Statutes, Regulations, and Other Plans

1.2.1 County of Imperial General Plan and Land Use Ordinance

The General Plan provides guidance on future growth in the County of Imperial. Any development in the County of Imperial must be consistent with the General Plan and Land Use Ordinance (Title 9, Division 10).

1.2.2 Renewables Portfolio Standard Program

Established in 2002 under Senate Bill (SB) 1078, California's Renewables Portfolio Standard (RPS) was accelerated in 2006 under SB 107 by requiring that 20 percent of electricity retail sales be served by RE resources by 2010. RE sources include wind, geothermal, and solar. Subsequent recommendations in California energy policy reports advocated a goal of 33 percent by 2020. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order (EO) S-14-08 requiring that "… all retail sellers of electricity shall serve 33 percent of their load with RE by 2020." The following year, EO S-21-09 directed the California Air Resources Board (CARB), under its Assembly Bill (AB) 32 authority, to enact regulations to achieve the goal of 33 percent renewables by 2020.

In the ongoing effort to codify the ambitious 33 percent by 2020 goal, SB X12 was signed by Governor Brown, in April 2011. This new RPS preempts the CARB's 33 percent Renewable Electricity Standard and applies to all electricity retailers in the state including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities had to adopt the new RPS goals of 20 percent of retails sales from renewables by the end of 2013, 25 percent by the end of 2016, and the 33 percent requirement being met by the end of 2020.

Governor Brown signed into legislation SB 350 in October 2015, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible RE resources by 2030.

1.2.3 California Global Warming Solutions Act of 2006, Assembly Bill 32 (Statutes 2006; Chapter 488; Health and Safety Code Sections 38500 et seq.)

This Act requires the CARB to enact standards that will reduce greenhouse gas (GHG) emissions to 1990 levels by 2020. Electricity production facilities are regulated by the CARB.

1.2.4 Title 17 California Code of Regulations, Subchapter 10, Article 2, Sections 95100 et seq.

These CARB regulations implement mandatory GHG emissions reporting as part of the California Global Warming Solutions Act of 2006.

1.2.5 Federal Clean Air Act

The legal authority for federal programs regarding air pollution control is based on the 1990 Clean Air Act (CAA) Amendments. These are the latest in a series of amendments made to the CAA. This legislation modified and extended federal legal authority provided by the earlier Clean Air Acts of 1963 1970, and 1977.

The Air Pollution Control Act of 1955 was the first Federal legislation involving air pollution. This Act provided funds for federal research in air pollution. The CAA of 1963 was the first Federal legislation regarding air pollution control. It established a federal program within the U.S. Public Health Service and authorized research into techniques for monitoring and controlling air pollution. In 1967, the Air Quality Act was enacted in order to expand Federal government activities. In accordance with this law, enforcement proceedings were initiated in areas subject to interstate air pollution transport. As part of these proceedings, the Federal government for the first time conducted extensive ambient monitoring studies and stationary source inspections.

The Air Quality Act of 1967 also authorized expanded studies of air pollutant emission inventories, ambient monitoring techniques, and control techniques.

1.2.6 Imperial County Air Pollution Control District

The ICAPCD enforces rules and regulations regarding air emissions associated with various activities, including construction and farming, and operational activities associated with various land uses, in order to protect the public health.

1.2.7 Federal Clean Water Act (33 United States Code Section 1251-1387)

The Federal Water Pollution Control Act (33 United States Code [USC] §§1251-1387), otherwise known as the CWA, is a comprehensive statute aimed at restoring and maintaining the chemical, physical and biological integrity of the nation's waters. Enacted originally in 1948, the Act was amended numerous times until it was reorganized and expanded in 1972. It continues to be amended almost every year. Primary authority for the implementation and enforcement of the CWA rests with the U.S. Environmental Protection Agency (EPA). In addition to the measures authorized before 1972, the Act authorizes water quality programs, requires federal effluent limitations and state water quality standards, requires permits for the discharge of pollutants into navigable waters, provides enforcement mechanisms, and authorizes funding for wastewater treatment works construction grants and state

revolving loan programs, as well as funding to states and tribes for their water quality programs. Provisions have also been added to address water quality problems in specific regions and specific waterways.

Important for wildlife protection purposes are the provisions requiring permits to dispose of dredged and fill materials into navigable waters. Permits are issued by the United States Army Corps of Engineers (USACE) under guidelines developed by EPA pursuant to Section 404 of the CWA.

1.2.8 Federal Clean Water Act and California Porter-Cologne Water Quality Control Act

The project is located within the Colorado River Basin RWQCB, Region 7. The CWA and the California Porter-Cologne Water Quality Control Act require that Water Quality Control Plans (more commonly referred to as Basin Plans) be prepared for the nine state-designated hydrologic basins in California. The Basin Plan serves to guide and coordinate the management of water quality within the region.

1.2.9 Federal Endangered Species Act

The ESA (16 USC 1531-1544) provides protection for plants and animals whose populations are dwindling to levels that are no longer sustainable in the wild. The Act sets out a process for listing species, which allows for petition from any party to list a plant or animal. Depending on the species, USFWS or the National Marine Fisheries Service (NMFS) will determine whether listing the species is warranted. If it is warranted, the species will be listed as either threatened or endangered. The difference between the two categories is one of degree, with endangered species receiving more protections under the statute.

1.2.10 National Historic Preservation Act

Federal regulations (36 Code of Federal Regulations [CFR] Part 800.2) define historic properties as "any prehistoric or historic district, site, building, structure, or object included, or eligible for inclusion in, in the National Register of Historic Places (NRHP)." The term "cultural resource" is used to denote a historic or prehistoric district, site, building, structure, or object, regardless of whether it is eligible for the NRHP.

1.2.11 California Endangered Species Act

CESA is enacted through Government Code Section 2050. Section 2080 of the California Fish and Game Code (FGC) prohibits "take" of any species that the commission determines to be an endangered species or a threatened species. Take is defined in Section 86 of the FGC as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

CESA allows for take incidental to otherwise lawful development projects. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project-caused losses of listed species populations and their essential habitats.

1.2.12 California Lake and Streambed Program (Fish and Game Code Section 1602)

CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the FGC (Section 1602) requires an entity to notify CDFW of any proposed activity that may substantially modify a river, stream, or lake.

1.3 Purpose of an EIR

The purpose of an EIR is to analyze the potential environmental impacts associated with a project. CEQA (Section 15002) states that the purpose of CEQA is to: (1) inform the public and governmental decision makers of the potential, significant environmental impacts of a project; (2) identify the ways that environmental damage can be avoided or significantly reduced; (3) prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and (4) disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

1.4 EIR Process

1.4.1 Availability of Reports

~~This~~ The Draft EIR and documents incorporated by reference ~~are~~ were made available for public review at the County of Imperial Planning and Development Services Department, 801 Main Street, El Centro, California 92243. Copies ~~are~~ were also available for review at the City of El Centro Public Library, 1140 N. Imperial Avenue, El Centro, California. Documents at these locations ~~may be reviewed~~ were available for review during regular business hours.

Patricia Valenzuela, Planner IV

County of Imperial, Planning and Development Services Department

801 Main Street

El Centro, California 92243

Comments received during the public review period of the Draft EIR ~~will be~~ have been reviewed and responded to in the Final EIR. The Final EIR will then be reviewed by the Imperial County Planning Commission and Board of Supervisors as a part of the procedure to adopt the EIR. Additional information on this process may be obtained by contacting the County of Imperial Planning and Development Services Department at (442) 265-1736.

1.4.2 Public Participation Opportunities/Comments and Coordination

Notice of Preparation

The County of Imperial issued a notice of preparation (NOP) for the preparation of an EIR for the Wister Solar Energy Facility Project on November 6, 2019. The NOP was distributed to city, county, state, and federal agencies, other public agencies, and various interested private organizations and individuals in order to define the scope of the EIR. The NOP was also published in the Imperial Valley Press on November 6, 2019. The purpose of the NOP was to identify public agency and public

concerns regarding the potential impacts of the project, and the scope and content of environmental issues to be addressed in the EIR. Correspondence in response to the NOP was received from the following entities and persons:

- Native American Heritage Commission
- IID
- Imperial County Department of Public Works
- Augustine Band of Cahuilla Indians

The comments submitted on the NOP during the public review and comment period are included as Appendix A to this EIR.

Scoping Meeting and Environmental Evaluation Committee

During the NOP public review period, the Wister Solar Energy Facility Project was discussed as an informational item at the County's Environmental Evaluation Committee meeting on November 14, 2019.

Additionally, a scoping meeting for the general public as well public agencies was held on November 14, 2019 at 6:00 p.m., to further obtain input as to the scope of environmental issues to be examined in the EIR. The NOP, which included the scoping meeting date and location, was published in the Imperial Valley Press on November 6, 2019. The meeting was held by the Imperial County Planning & Development Services Department in the Board of Supervisors Chambers located at the County Administration Center at 940 Main Street, El Centro, California. At the scoping meeting, members of the public were invited to ask questions regarding the proposed project and the environmental review process, and to comment both verbally and in writing on the scope and content of the EIR. No written or verbal comments were received during the scoping meeting.

1.4.3 Environmental Topics Addressed

Based on the analysis presented in the NOP and the information provided in the comments to the NOP, the following environmental topics are analyzed in this EIR.

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources (includes Tribal Cultural Resources)
- Geology and Soils
- GHG Emissions
- Hydrology/Water Quality
- Land Use and Planning
- Transportation/Traffic
- Utilities/Service Systems

Eliminated from Further Review in Notice of Preparation

The initial study (IS)/NOP completed by the County (Appendix A of this EIR) determined that environmental effects to Agriculture and Forestry Resources, Energy, Hazards and Hazardous Materials, Mineral Resources, Noise and Vibration, Recreation, Population/Housing, Public Services, Utilities (Wastewater, Stormwater, and Solid Waste), and Wildfire would not be potentially significant. Therefore, these impacts are not addressed in this EIR; however, the rationale for eliminating these issues is briefly discussed below:

Agriculture Resources

According to the farmland maps prepared by the California Department of Conservation (2017), the project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (California Department of Conservation 2017). The proposed project would not convert Important Farmland to non-agricultural uses.

The project site is currently designated by the General Plan as "Recreation" and is zoned Open Space/Preservation with a Geothermal Overlay (S-2-G). According to the 2016/2017 Imperial County Williamson Act Map produced by the California Department of Conservation's Division of Land Resource Protection, the project site is not located on Williamson Act contracted land (California Department of Conservation 2016). The proposed project has no potential to conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, implementation of the proposed project would not impact agriculture resources.

Forestry Resources

No portion of the project site or the immediate vicinity is zoned or designated as forest lands, timberlands, or Timberland Production. As such, the proposed project would not result in a conflict with existing zoning or cause rezoning. Therefore, implementation of the proposed project would not impact forestry resources.

Energy

The use of energy associated with the project includes both construction and operational activities. Construction activities consume energy through the use of heavy construction equipment and truck and worker traffic. The proposed project will use energy-conserving construction equipment, including standard mitigation measures for construction combustion equipment recommended in the ICAPCD CEQA Air Quality Handbook (ICAPCD 2017). The use of better engine technology, in conjunction with the ICAPCD's standard mitigation measures will reduce the amount of energy used for the project.

Implementation and operation of the proposed project would promote the use of renewable energy and contribute incrementally to the reduction in demand for fossil fuel use for electricity-generating purposes. The project would generate renewable energy resources and is considered a beneficial effect. Based on these considerations, the proposed project would not result in significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

The project will help California meet its Renewable Portfolio Standard of 50 percent of retail electricity sales from renewable sources by the end of 2030.The electricity generation process associated with the project would utilize solar technology to convert sunlight directly into electricity. Solar PV technology is consistent with the definition of an "eligible renewable energy resource" in Section 399.12 of the California Public Utilities Code and the definition of "in-state renewable electricity generation facility" in Section 25741 of the California Public Resources Code (PRC). The proposed project would not conflict with or obstruct a state or local plan for renewable energy of energy efficiency. The proposed project would result in a less than significant impact related to energy.

Hazards and Hazardous Materials

Construction of the proposed project will involve the limited use of hazardous materials, such as fuels and greases to fuel and service construction equipment. No extremely hazardous substances are anticipated to be produced, used, stored, transported, or disposed of as a result of project construction.

No operations and maintenance facilities, or habitable structures are proposed on-site. Operation of the project will be conducted remotely. Regular, routine maintenance of the project may result in the potential to handle hazardous materials. However, the hazardous materials handled on-site would be limited to small amounts of everyday use cleaners and common chemicals used for maintenance.

The applicant will be required to comply with State laws and County Ordinance restrictions, which regulate, and control hazardous materials handled on-site. Such hazardous wastes would be transported off-site for disposal according to applicable State and County restrictions and laws governing the disposal of hazardous waste during construction and operation of the project. Based on these considerations, a less than significant impact would occur.

The project site is not located within 0.25 mile of an existing or proposed school. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No impact would occur.

Based on a review of the Cortese List conducted in October 2019, the project site is not listed as a hazardous materials site. Therefore, the proposed project would not create a significant hazard to the public or the environment and no impact would occur.

The project site is not located within two miles of a public airport or public use airport. Therefore, the proposed project would not result in airport hazards for people residing or working in the project area and no impact would occur.

The proposed project is not expected to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The project applicant will be required, through the conditions of approval, to prepare a street improvement plan for the project that will include emergency access points and safe vehicular travel. In addition, local building codes would be followed to minimize flood, seismic, and fire hazard. Therefore, the proposed project would result in a less than significant impact associated with the possible impediment to emergency plans.

Mineral Resources

The project site is not used for mineral resource production and the applicant is not proposing any form of mineral extraction. According to Figure 8: Imperial County Existing Mineral Resources of the Conservation and Open Space Element of the General Plan, no known mineral resources occur within the project site nor does the project site contain mapped mineral resources. Therefore, the proposed project would not result in the loss of availability of any known mineral resources that would be of value to the region and the residents of California nor would the proposed project result in the loss of availability of a locally important mineral resource.

Based on a review of the California Department Division of Oil, Gas, and Geothermal Resources Well Finder, there is one idle geothermal well (Well No. 02591491) located in the northwest quarter of the project parcel (California Department of Oil, Gas, and Geothermal Resources n.d.). This geothermal well would be avoided by the proposed project. Implementation of the proposed project would not impact geothermal wells.

Noise and Vibration

The Imperial County Title 9 Land Use Ordinance, Division 7, Chapter 2, Section 90702.00 - Sound level limits, establishes one-hour average sound level limits for the County's land use zones. Industrial operations are required to comply with the noise levels prescribed under the general industrial zones.

Therefore, the project is required to maintain noise levels below 75 decibels (dB) (averaged over one hour) during any time of day.

The project would be expected to comply with the Noise Element of the General Plan which states that construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB, when averaged over an eight hour period, and measured at the nearest sensitive receptor. Construction equipment operation is also limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. on Saturdays. Compliance with Imperial County's standards for construction noise levels would result in less than significant noise impacts during project construction.

Ground-borne vibration and ground-borne noise could originate from earth movement during the construction phase of the proposed project. Construction of the proposed project may require post driving and vibratory rollers and has the potential to result in temporary vibration impacts on structures and humans. However, the project site is in a generally rural area and surrounded by relatively undisturbed desert lands. Sensitive receptors located within one mile of the project site consist of a few scattered rural homes west of the site. There are no sensitive receptors within 1,500 feet of the project site boundary. The project would be expected to comply with all applicable requirements for long-term operation, as well as with measures to reduce excessive ground-borne vibration and noise to ensure that the project would not expose persons or structures to excessive ground-borne vibration. No further analysis is warranted.

The project site is not located within two miles of a public airport or private airstrip. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels and no impact would occur.

Population/Housing

Development of housing is not proposed as part of the project. No full-time employees are required to operate the project. The project facility will be monitored remotely. It is anticipated that maintenance of the facility will require minimal site presence to perform periodic visual inspections and minor repairs. On intermittent occasions, the presence of additional workers may be required for repairs or replacement of equipment and panel cleaning; however, due to the nature of the facility, such actions will likely occur infrequently. Therefore, the proposed project would not result in a substantial growth in the area, as the number of employees required to operate and maintain the facility is minimal.

No housing exists within the project site and no people reside within the project site. Therefore, the proposed project would not displace substantial numbers of people or housing, necessitating the construction of replacement housing elsewhere. The proposed project would result in no impact to population and housing.

Public Services

Fire Protection. Fire protection and emergency medical services in the area are provided by the Imperial County Fire Department. The project site is located in the unincorporated area of Imperial County. According to the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the potential for a major fire in the unincorporated areas of the County is generally low. Both the access and service roads (along the perimeter of the project facility) would have turnaround areas to allow clearance for fire trucks per fire department standards (70 feet by 70 feet, and 20-foot-wide access road). While the proposed project may result in an increase in demand for fire protection service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered fire protection

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. Based on these considerations, the project would not result in a need for fire facility expansion and a less than significant impact would occur.

Police Protection. Police protection services in the project area is provided by the Imperial County Sheriff's Department. Although the potential is low, the proposed project ~~may~~ could attract ~~vandals~~ trespassers or other ~~security risks~~ unauthorized uses. The increase in construction related traffic could temporarily increase demand on law enforcement services. However, the project site would be fenced with a 6-foot high chain link security fence topped with barbed wire and points of ingress/egress would be accessed via locked gates. In addition, periodic on-site personnel visitations for security would occur during operations and maintenance of the proposed project, thereby minimizing the need for police surveillance. While the proposed project may result in a temporary increase in demand for law enforcement service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered sheriff 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. The sheriff's department has indicated that an all-terrain vehicle would be needed in order to patrol the project site; however, the fenced and secure project site does not result in an increase in demand on law enforcement that would require existing or new facilities to be upgraded in order to maintain service ratios. Further, as conditions of approval of the project, the project applicant will be required to participate in the Imperial County Public Benefit Program for the life of this CUP and shall at all times be a party to a public benefit agreement in a form acceptable to County Counsel in order to pay for all costs, benefits, and fees associated with the approved project, and the applicant will be required to reimburse the Sheriff's Department for any investigations regarding theft on the Project site and related law enforcement. Approval of this public benefit agreement will be by the Board of Supervisors prior to the issuance of the first building permit. These potential impacts are less than significant. ~~This is considered a less than significant impact.~~

Schools. The proposed project does not include the development of residential land uses that would result in an increase in population or student generation. Construction of the proposed project would not result in an increase in student population within the Imperial County's School District since it is anticipated that construction workers would commute in during construction operations. The proposed project would have no impact on Imperial County schools.

Parks and Other Public Facilities. No full-time employees are required to operate the project. The project facility will be monitored remotely. It is anticipated that maintenance of the facility will require minimal site presence to perform periodic visual inspections and minor repairs. Therefore, substantial permanent increases in population that would adversely affect local parks, libraries, and other public facilities are not expected. The project is not expected to have an impact on parks, libraries, and other public facilities.

Recreation

The project site is not used for formal recreational purposes. Also, the proposed project would not generate new employment on a long-term basis. As such, the project would not significantly increase the use or accelerate the deterioration of regional parks or other recreational facilities. The temporary increase of population during construction that might be caused by an influx of workers would be minimal and not cause a detectable increase in the use of parks. Additionally, the project does not

include or require the expansion of recreational facilities. Therefore, no impact is identified for recreation.

Utilities and Service Systems

Wastewater Facilities. The project would generate a minimal volume of wastewater during construction. During construction activities, wastewater would be contained within portable toilet facilities and disposed of at an approved site. No habitable structures are proposed on the project site, such as O&M buildings; therefore, there would be no wastewater generation from the proposed project. The proposed project would not require or result in the relocation or construction of new or expanded wastewater facilities.

Storm Water Facilities. The proposed project will involve the construction of storm water drainage control facilities within the project site as shown on Figure 2-4 Preliminary Site Plan, ~~which are identified in the project site plan~~, and included in the project impact footprint, of which environmental impacts have been evaluated. Otherwise, the project does not require expanded or new storm drainage facilities off-site (i.e., outside of the project footprint) because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events, and therefore, would not require the construction of off-site storm water management facilities. Water from solar panel washing would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious. The proposed project would not require or result in the relocation or construction of new or expanded storm water facilities beyond those proposed as part of the project and evaluated in the EIR.

Water Facilities. The proposed project is not anticipated to result in a significant increase in water demand/use during operation; however, water will be needed for solar panel washing and dust suppression. During operation, water would be trucked to the project site from a local water source. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded water facilities.

Power, Natural Gas, and Telecommunication Facilities. The proposed project would involve construction of power facilities and would include a fiber optic connection. However, these are components of the project as evaluated in the EIR. The proposed project would not otherwise generate the demand for or require or result in the relocation or construction of new or expanded electric power, natural gas, or telecommunications facilities that would in turn, result in a significant impact to the environment.

Solid Waste Facilities. Solid waste generation would be minor for the construction and operation of the project. Solid waste would be disposed of using a locally licensed waste hauling service, most likely Allied Waste. Trash would likely be hauled to the Niland Solid Waste Site (13-AA-0009) located in Niland. The Niland Solid Waste Site has approximately 318,669 cubic yards of remaining capacity and is estimated to remain in operation through 2056 (CalRecycle n.d.). Therefore, there is ample landfill capacity in the County to receive the minor amount of solid waste generated by construction and operation of the project.

Additionally, because the proposed project would generate solid waste during construction and operation, the project would be required to comply with state and local requirements for waste reduction and recycling; including the 1989 California Integrated Waste Management Act and the 1991 California Solid Waste Reuse and Recycling Access Act of 1991. Also, conditions of the CUP would contain provisions for recycling and diversion of Imperial County construction waste policies.

Further, when the proposed project reaches the end of its operational life, the components would be decommissioned and deconstructed. When the project concludes operations, much of the wire, steel, and modules of which the system is comprised would be recycled to the extent feasible. The project components would be deconstructed and recycled or disposed of safely, and the site could be converted to other uses in accordance with applicable land use regulations in effect at the time of closure. Commercially reasonable efforts would be used to recycle or reuse materials from the decommissioning. All other materials would be disposed of at a licensed facility. A less than significant impact is identified for this issue.

Wildfire

According to the Draft Fire Hazard Severity Zone Map for Imperial County prepared by the California Department of Forestry and Fire Protection, the project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). Therefore, no impact is identified for wildfire.

1.4.4 Areas of Controversy and Issues to be Resolved

Section 15123(b)(2) of the CEQA Guidelines requires that an EIR identify areas of controversy known to the Lead Agency, including issues raised by other agencies and the public as well as issues to be resolved. A primary issue associated with this solar farm project, and other solar facility projects that are proposed in the County, is the corresponding land use compatibility and fiscal/economic impacts to the County. Through the environmental review process for this project, other areas of concern and issues to be resolved include groundwater supply; relocation, modification, or reconstruction of IID facilities; and access.

1.4.5 Document Organization

The structure of the Draft EIR is identified below. The Draft EIR is organized into 11 chapters, including the Executive Summary.

- The **Executive Summary** provides a summary of the proposed project, including a summary of project impacts, mitigation measures, and project alternatives.
- **Chapter 1 Introduction** provides a brief introduction of the proposed project; relationship to statutes, regulations and other plans; the purpose of an EIR; public participation opportunities; availability of reports; and comments received on the NOP.
- **Chapter 2 Project Description** provides a description of the Wister Solar Energy Facility Project. This chapter also defines the goals and objectives of the proposed project, provides details regarding the individual components that together comprise the project, and identifies the discretionary approvals required for implementation of the project.
- **Chapter 3 Environmental Analysis** provides a description of the existing environmental setting and conditions, an analysis of the environmental impacts of the project for the following environmental issues: aesthetics; air quality; biological resources; cultural resources (includes tribal cultural resources); geology and soils; GHG emissions; hydrology/water quality; land use and planning; transportation/traffic; and utilities/service systems. This chapter also identifies mitigation measures to address potential impacts to the environmental issues identified above.
- **Chapter 4 Analysis of Long-Term Effects** provides an analysis of growth inducing impacts, significant irreversible environmental changes, and unavoidable adverse impacts.

- **Chapter 5 Cumulative Impacts** discusses the impact of the proposed project in conjunction with other planned and future development in the surrounding areas.
- **Chapter 6 Effects Found Not to be Significant** lists all the issues determined to not be significant as a result of the preparation of this EIR.
- **Chapter 7 Alternatives** analyzes the alternatives to the proposed project.
- **Chapter 8 References** lists the data references utilized in preparation of the EIR.
- **Chapter 9 EIR Preparers and Organizations Contacted** lists all the individuals and companies involved in the preparation of the EIR, as well as the individuals and agencies consulted and cited in the EIR.

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2 Project Description

Chapter 2 provides a description of the Wister Solar Energy Project. This chapter also defines the goals and objectives of the proposed project, provides details regarding the individual components that together comprise the project, and identifies the discretionary approvals required for project implementation.

The proposed project consists of three primary components: 1) solar energy generation equipment and associated facilities including a substation and access roads (herein referred to as "solar energy facility"); 2) gen-tie line that would connect the proposed on-site substation to the POI at the existing IID 92-kV "K" line; and, 3) on-site wireless communication system or off-site fiberoptic cable.

2.1 Project Location

2.1.1 Solar Energy Facility and Gen-Tie Line

The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County (Figure 2-1). The project site is located on one parcel of land identified as APN 003-240-001 (Figure 2-2). The parcel is comprised of approximately 640 acres of land and is currently zoned Open Space/Preservation with a Geothermal Overlay (S-2-G). The proposed solar energy facility component (including on-site wireless communication system), of the project would be located on approximately 100 acres within the northwest portion of the larger 640-acre project site parcel.

The project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (physical area where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road.

2.1.2 Fiberoptic Cable

The proposed project includes approximately two miles of fiberoptic line (i.e. cable) from the proposed on-site substation to the existing Niland Substation, located at 402 Beal Road in Niland. Figure 2-3 shows the alignment of the proposed fiberoptic cable. The fiber optic cable would only be constructed in the event that the proposed wireless communication system is not constructed on-site.

Figure 2-1. Regional Location

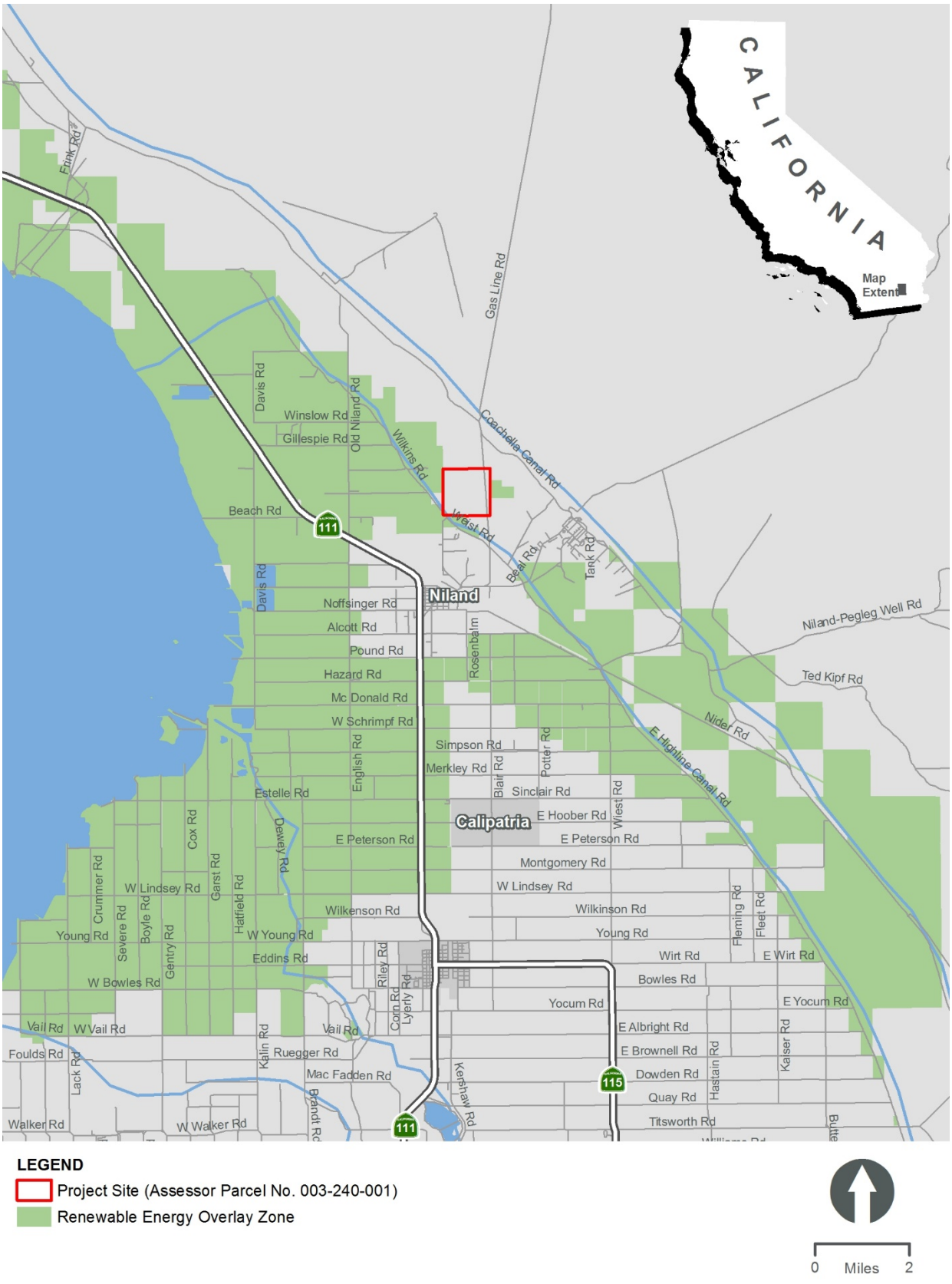
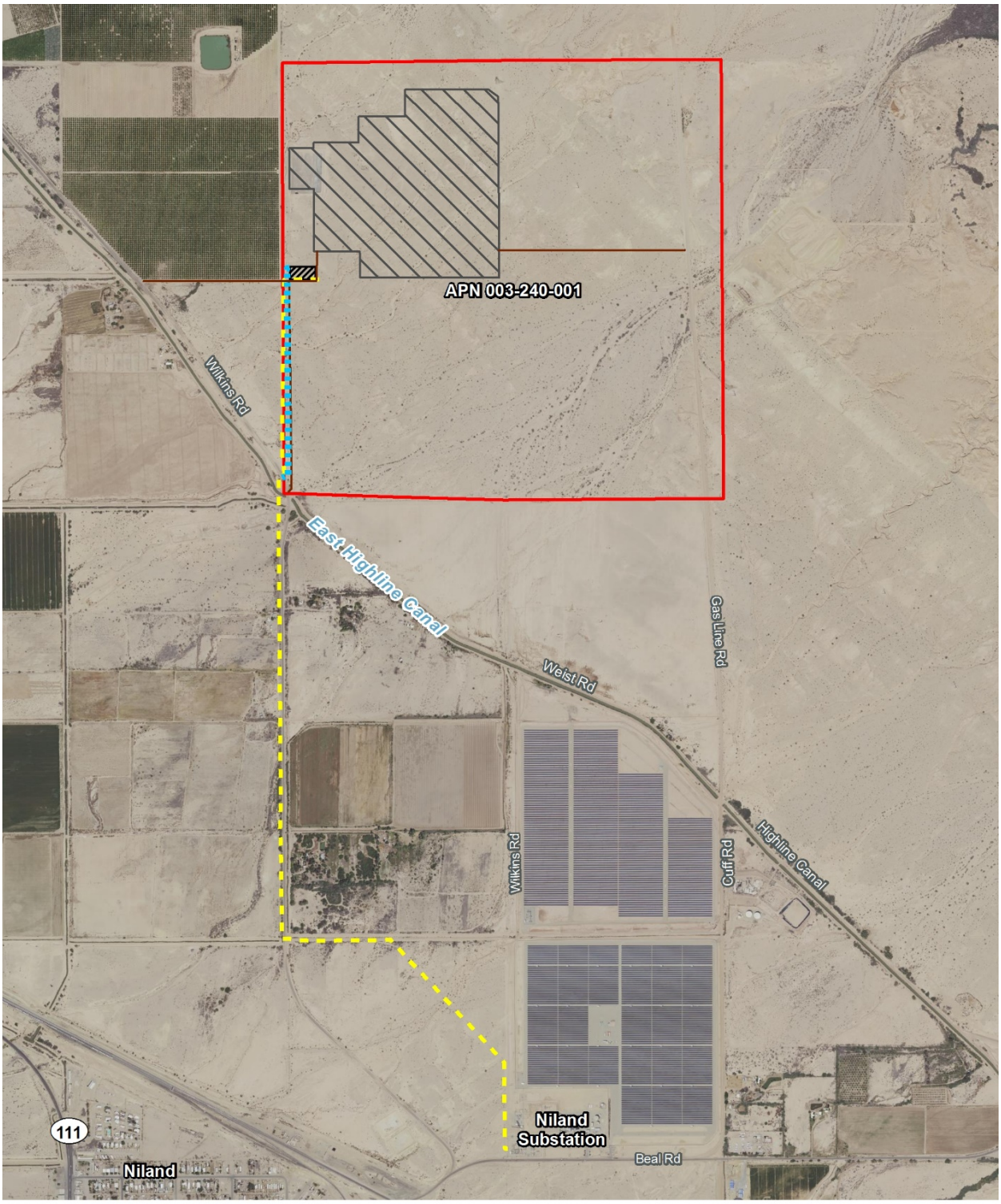


Figure 2-2. Project Site

Figure 2-3. Fiberoptic Cable and Gen-Tie Alignment



2.1.3 Renewable Energy Overlay Zone

In 2016, the County adopted the Imperial County Renewable Energy and Transmission Element, which includes an RE Zone (RE Overlay Map). This General Plan element was created as part of the California Energy Commission Renewable Energy Grant Program to amend and update the County's General Plan to facilitate future development of renewable energy projects.

The County Land Use Ordinance, Division 17, includes the RE Overlay Zone, which authorizes the development and operation of renewable energy projects with an approved CUP. The RE Overlay Zone is concentrated in areas determined to be the most suitable for the development of renewable energy facilities while minimizing the impact on other established uses. CUP applications proposed for specific renewable energy projects not located in the RE Overlay Zone would not be allowed without an amendment to the RE Overlay Zone.

The County's General Plan and Land Use Ordinance allows for renewable energy projects proposed on land classified as a non-RE Overlay zone if the renewable energy project: 1) would be located adjacent to an existing RE Overlay Zone; 2) is not located in a sensitive area; 3) is located in proximity to renewable energy infrastructure; and, 4) and would not result in any significant environmental impacts.

As shown on Figure 3-1, APN No. 003-240-001 (the project site) is located outside, but immediately adjacent to the RE Overlay Zone. Therefore, the applicant is requesting a General Plan Amendment and Zone Change to add APN No. 003-240-001 to the County's RE Overlay Zone. The underlying "Recreation" General Plan designation would remain.

2.2 Project Objectives

- Construct, operate and maintain an efficient, economic, reliable, safe and environmentally sound solar-powered electricity generating facility.
- Help meet California's RPS requirements, which require that by 2030, California's electric utilities are to obtain 50 percent of the electricity they supply from renewable sources.
- Generate renewable solar-generated electricity from proven technology, at a competitive cost, with low environmental impact, and deliver it to the local markets as soon as possible.
- Develop, construct, own and operate the Wister Solar Energy Facility, and ultimately sell its electricity and all renewable and environmental attributes to an electric utility purchaser under a long-term contract to meet California's RPS goals.
- Utilize a location that is in close proximity to an existing switching station and powerlines.
- Minimize and mitigate any potential impact to sensitive environmental resources within the project area.

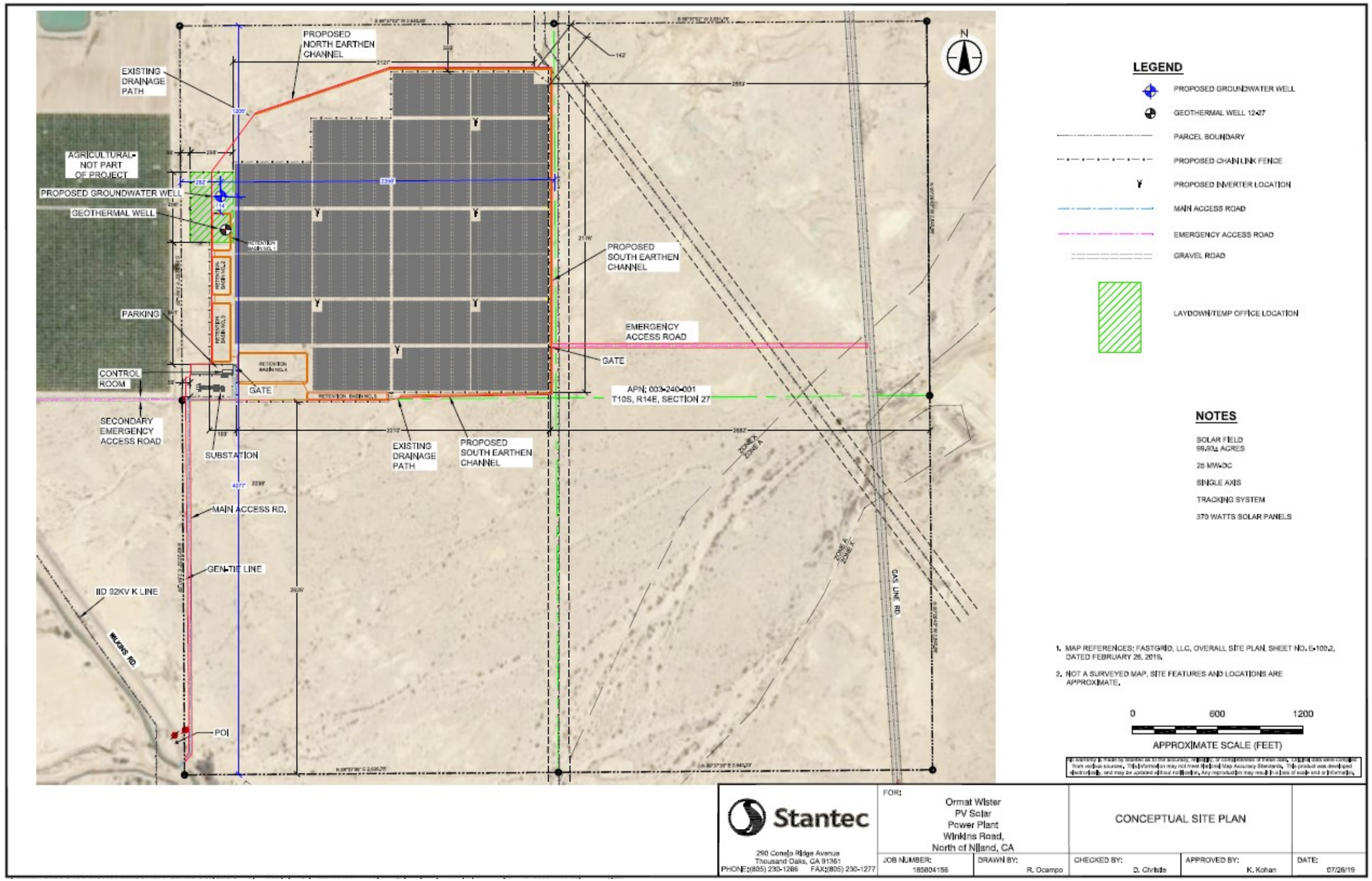
2.3 Project Characteristics

The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 MW PV solar energy facility on approximately 100 acres within APN No. 003-240-001 (privately-owned land) north of Niland. The proposed solar energy project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, an on-site wireless communication system, transformers, and underground electrical cables. Figure 2-4 depicts the proposed site plan.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92-kV substation, which will be tied directly to the Imperial Irrigation District's 92-kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92-kV "K" line.

The project applicant has secured a Power Purchase Agreement (PPA) with San Diego Gas and Electric for the sale of power from the project.

Figure 2-4. Preliminary Site Plan



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2.3.1 Photovoltaic Panels/Solar Arrays

PV solar cells convert sunlight directly into direct current (DC) electricity. The process of converting light (photons) to electricity (voltage) in a solid-state process is called the PV effect. A number of individual PV cells are electrically arranged and connected into solar PV modules, sometimes referred to as solar panels.

The solar PV generating facility would consist of 3.5 foot by 4.8-foot PV modules (or panels) on single-axis horizontal trackers in blocks that each hold 2,520 PV panels. Figure 2-5 provides a representative example of single-axis horizontal trackers. The panels would be oriented from east to west for maximum exposure and the foundation would be designed based on soil conditions, with driven piles as the preferred method. The PV modules would be made of a poly-crystalline silicon semiconductor material encapsulated in glass. Installation of the PV arrays would include installation of mounting posts, module rail assemblies, PV modules, inverters, transformers and buried electrical conductors. Concrete would be required for the footings, foundations and pads for the transformers and substation work.

PV modules would be organized into electrical groups referred to as “blocks.” The proposed project would consist of 12 blocks. Every two blocks will be collected to an inverter and would typically encompass approximately 8 acres, including a pad for one transformer and one inverter. Approximately 96 acres of ground disturbance, including acreage for 12 blocks, is required for the proposed project. The proposed project would include design elements (e.g., non- or anti-reflective material) to reduce the potential glare impacts on adjacent sensitive receptors (e.g. local residents, aircraft, traveling public on adjacent County roads).

The electrical output from the PV modules would be low voltage DC power that would be collected and routed to a series of inverters and their associated pad-mounted transformers. Each array would have one inverter and one transformer, which are collectively known as a Power Conversion Station (PCS). The inverters would convert the DC power generated by the panels to alternating current (AC) power and the pad mounted transformers step up the voltage to a nominal level. The outputs from the transformers are grouped together in PV combining switchgear, which in turn supplies the switchyard, where the power is stepped up to 92-kV for interconnection with the transmission system.

Figure 2-5. Representative Example of Typical Single-Axis Tracking Solar Panels

2.3.2 Substation

The proposed Wister Substation would be a new 92/12-kV unstaffed, automated, low-profile substation. The dimensions of the fenced substation would be approximately 300 feet by 175 feet. The enclosed substation footprint would encompass approximately 1.2 acres within the 100-acre project site footprint as part of the approximately 640-acre project parcel. As shown on Figure 2-4, the proposed Wister Substation site would be located at the northwest quarter of the parcel, immediately southwest of the solar field. The California Building Code and the Institute of Electrical and Electronics Engineers (IEEE) 693, Recommended Practices for Seismic Design of Substations, will be followed for the substation's design, structures, and equipment.

A wireless communication system will be located in the southwest portion of the site, within the substation area. This communication system will include a communication tower less than 40-feet in height. The tower will be a freestanding mono-pole without guy wire supports. Equipment associated with the communication system will be located within the substation control building. Overall, this would provide Supervisory Control and Data Acquisition (SCADA), protective relaying, data transmission, and telephone services for the proposed Wister Substation and associated facilities. New telecommunications equipment would be installed at the proposed Wister Substation within the Mechanical and Electrical Equipment Room (MEER). A representative example of a substation is presented on Figure 2-6.

Figure 2-6. Representative Example of Typical Substation Design

2.3.3 Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~A proposed~~ a fiberoptic line extending from the proposed Wister Substation would be connected with the existing Niland Substation approximately two miles to the south, which would then be added to connect the proposed Wister Substation to the region's telecommunications system. ~~Overall, this would provide Supervisory Control and Data Acquisition (SCADA), protective relaying, data transmission, and telephone services for the proposed Wister Substation and associated facilities. New telecommunications equipment would be installed at the proposed Wister Substation within the Mechanical and Electrical Equipment Room (MEER).~~ As shown on Figure 2-3, the proposed fiber optic telecommunications cable would utilize existing transmission lines to connect to the Niland Substation. The length of the proposed fiber optic telecommunications cable route would be approximately two miles.

2.3.4 Gen-Tie Line

As shown on Figure 2-4, a proposed gen-tie line would connect the Wister substation to the POI at the existing IID 92-kV "K" line. The proposed gen-tie line would originate at the proposed Wister substation and would terminate at the POI, at a distance of approximately 2,500 feet to the south-southwest. Steel poles, standing at a maximum height of 70 feet tall, will be spaced approximately every 300 feet along the route, and would support the 92-kV conductor and fiberoptic cable to the POI. Construction of the 2,500-foot gen-tie line to the POI would utilize overland travel via an all-weather improved access road along the entire route.

2.3.5 Auxiliary Facilities

This section describes the auxiliary facilities that would be constructed and operated in conjunction with the solar facility.

Site Security and Fencing

The project site would be fenced with a 6-foot high chain link security fence topped with barbed wire. Points of ingress/egress would be accessed via locked gates.

Lighting System

Minimal lighting would be required for operations and would be limited to safety and security functions. All lighting would be directed downward and shielded to confine direct rays to the project site and muted to the maximum extent consistent with safety and operational necessity (Title 9, Division 17, Chapter 2: Specific Standards for all Renewable Energy Projects, of the County's Zoning Ordinance).

Access

A total of three access roads will service the proposed project. Access to the project site from the east would be located off Gas Line Road. Access to the solar energy facility portion of the project site from the west would include two routes: one route north from the southwest corner of the parcel off Wilkins Road (main access road), and another route off Wilkins Road just south of the existing orchard to the west of the project. These two access roads from the west would both lead to the same gate at the project site.

All access roads would be constructed with an all-weather surface, to meet the County Fire Department's standards, and lead to a locked gate that can be opened by any emergency responders. The access and service roads would also have turnaround areas at any dead-end to allow clearance for fire trucks per fire department standards (70 feet by 70 feet and 20-foot-wide access road).Figure 2-4 illustrates the project site layout and access points.

An all-weather surface access road, to meet the County's standards, would surround the perimeter of the site, as well as around solar blocks no greater than 500 by 500 feet.

Groundwater Well

The proposed project may utilize groundwater available at the project site for project construction, and potentially limited operational activities. A groundwater well would be constructed and operated near the existing geothermal well pad (and proposed project construction staging area) located in the north-western portion of the project site. Figure 2-4 depicts the location of the proposed groundwater well.

2.4 Project Construction

2.4.1 Construction Sequence

Construction activities would be sequenced and conducted in a manner that addresses storm water management and soil conservation. During construction, electrical equipment would be placed in service at the completion of each 2,500-kilowatt (kW) power-block. The activation of the power-blocks is turned over to interconnection following the installation of transformer and interconnection equipment upgrades. This in-service timing is critical because PV panels can produce power as soon as they are exposed to sunlight, and because the large number of blocks and the amount of time needed to commission each block requires commissioning to be integrated closely with construction on a block-by-block basis.

Construction would generally occur during daylight hours, Monday through Friday. However, non- daylight work hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. For example, during hot weather, it may be necessary to start work earlier to avoid pouring concrete during high ambient temperatures. If construction is to occur outside of the County's specified working hours, permission in writing will be sought at the time. Construction of the proposed project would occur in phases beginning with site preparation and grading and ending with equipment setup and commencement of commercial operations. Overall, construction would consist of three major phases over a period of approximately 6-9 months:

1. Site Preparation, which includes clearing grubbing, grading, service roads, fences, drainage, and concrete pads; (1 month)
2. PV system installation and testing, which includes installation of mounting posts, assembling the structural components, mounting the PV modules, wiring; (7 months) and
3. Site clean-up and restoration. (1 month)

To support these activities, the main pieces of equipment that may be used during construction are listed in Table 2-1.

Construction activities would be conducted in a manner consistent with Imperial County Codified Ordinance. Noise generating sources in Imperial County are regulated under the County of Imperial Codified Ordinances, Title 9, Division 7 (Noise Abatement and Control). Noise limits are established in Chapter 2 of this ordinance. Under Section 90702.00 of this rule, average hourly noise in residential areas is limited to 50 to 55 A-weighted decibel (dbA) from 7 a.m. to 10 p.m., and to 45 to 50 dBA from 10 p.m. to 7 a.m. There are no sensitive noise receptors (e.g., residences, schools) within or adjacent to the project site.

2.4.2 Workforce

The temporary on-site construction workforce would consist of laborers, electricians, supervisory personnel, support personnel and construction management personnel. The average number of construction workers would be approximately 50-60 people per day.

2.4.3 Materials

The proposed project would require general construction materials (i.e., concrete, wood, metal, fuel, etc.) as well as the materials necessary to construct the proposed PV arrays and which are readily available and accessible locally. Most construction waste is expected to be non-hazardous and to consist primarily of cardboard, wood pallets, copper wire, scrap steel, common trash and wood wire spools and can be disposed of safely in local sanitary landfills. Although field equipment used during construction activities could contain various hazardous materials (i.e., hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, etc.), these materials are not considered to be acutely hazardous and would be used and disposed of in accordance with the manufacturer's specifications and all applicable County regulations.

Each PV module would be constructed out of poly-crystalline silicon semiconductor material encapsulated in glass. Construction of the PV arrays will include installation of support beams, module rail assemblies, PV modules, inverters, transformers, and underground electrical cables. Concrete will be required for the footings, foundations, pads for transformers, and substation equipment. Concrete will be purchased from a local supplier and transported to the proposed project site by truck. The

poly-crystalline silicon housing the inverters will have a precast concrete base. Final concrete specifications will be determined during detailed design engineering in accordance with applicable building codes.

Table 2-1. Example Construction Equipment

Equipment	Use
1-ton crew trucks	Transport construction personnel
2-ton flatbed trucks; flatbed boom trucks	Haul and unload materials
Mechanic truck	Service and repair equipment
Aerial bucket trucks	Access poles, string conductor, and other uses
Shop vans	Store tools
Bulldozers	Grade pole sites; reclamation
Truck-mounted diggers or backhoes	Excavate
Small mobile cranes (12 tons)	Load and unload materials
Large mobile cranes (75 tons)	Erect structures
Transport	Haul poles and equipment
Drill rigs with augers	Excavate and install fences
Semi tractor-trailers	Haul structures and equipment
Splice trailers	Store splicing supplies
Air compressor	Operate air tools
Air tampers	Compact soil around structure foundations
Concrete trucks	Pour concrete
Dump trucks	Haul excavated materials/import backfill
Fuel and equipment fluid trucks	Refuel and maintain vehicles
Water trucks	Suppress dust and fire

2.4.4 Site Preparation

Project construction would include the renovation of existing dirt roads to all-weather surfaces (to meet the County standards) from Wilkins Road just south of the orchard, and a new road would be graded west from Gas Line Road and a new road graded north from the southwest corner of the parcel off Wilkins Road. Construction of the proposed project would begin with clearing of existing brush and installation of fencing around the project boundary. A 20 foot road of engineering-approved aggregate will surround the site within the fencing.

Material and equipment staging areas would be established on-site within an approximate 4-acre area. The staging area would include an air-conditioned temporary construction office, a first-aid station and other temporary facilities including, but not limited to, sanitary facilities, worker parking, truck loading and unloading, and a designated area for assembling the support structures for the placement of PV modules. The location of the staging area would change as construction progresses throughout the project site. The project construction contractor would then survey, clear and grade road corridors in order to bring equipment, materials, and workers to the various areas under construction within the project site. Road corridors, buried electrical lines, PV array locations and locations of other facilities

may be flagged and staked in order to guide construction activities. In addition, water truck reloading stations would be established for dust control.

2.4.5 Start-up

PV system installation would include earthwork, grading and erosion control, as well as erection of the PV modules, mounting posts and associated electrical equipment. The PV modules require a moderately flat surface for installation and therefore some earthwork, including grading, fill, compaction and erosion control, may be required to accommodate the placement of PV arrays, concrete for foundations, access roads and/or drainage features.

Construction of the PV arrays would be expected to take place at a rate of approximately 0.10 MW per day. Construction of the PV arrays would include installation of the mounting posts, module assemblies, PV modules, inverters, transformers and buried electrical conductors.

The module assemblies would then be cut off at the appropriate heights since the center posts must be completely level. Field welding would be required to attach the module assemblies to the top of the mounting posts.

Finally, the PV panels would be attached to the module assemblies. Heavy equipment lifters (e.g., forklift) would be required to place the module assemblies in position, while welding and cutting equipment would be necessary to cut off the posts at the appropriate height.

2.4.6 Construction Water Requirements

The proposed project is anticipated to take approximately 6-9 months from the commencement of the construction process to complete. Construction water (non-potable) needs would be limited to earthwork, soil conditioning, dust suppression, and compaction efforts. During construction, on-site groundwater is proposed to be utilized. Approximately 900,000 gallons (2.76 acre-feet [af]) of water (40,909 gallons per work day) would be required during the first phase of construction for site preparation and grading and would be obtained from the proposed on-site groundwater well. The second phase of construction (PV system installation and testing) would take approximately 6 months and require approximately 2,130,000 gallons (6.54 af) of water (16,136 gallons per work day) and also be derived from the proposed on-site groundwater well. Water usage would then be reduced to approximately 300,000 gallons (0.92 af) (13,636 gallons per workday) of water required during the last phase of the construction (clean-up and restoration). Therefore, the proposed project would require a total of 3,330,000 gallons (10.22 af) of water during the construction period.

2.4.7 Dust Suppression

The project would comply with all applicable air pollution and dust control regulations. During the construction phase of the project, standard dust control measures would be used to mitigate emissions of fugitive dust. These may include watering or applying dust reducers with low environmental toxicity to suppress dust during construction.

2.4.8 Clean-up and Demobilization

After construction is complete, all existing County and private roads utilized would be left in a condition equal to or better than their preconstruction condition. All other areas disturbed by construction activities would be recontoured and decompacted.

Waste materials and debris from construction areas would be collected, hauled away, and disposed of at approved landfill sites. Cleared vegetation would be shredded and distributed over the disturbed site as mulch and erosion control or disposed of offsite, depending on agency agreements. Rocks removed during foundation excavation would be redistributed over the disturbed site to resemble adjacent site conditions. Interim reclamation would include re-contouring of impacted areas to match the surrounding terrain, and cleaning trash out of gullies. Equipment used could include a blader, front-end loader, tractor, and a dozer with a ripper.

A covered portable dumpster would be kept on site during the construction period to contain any trash that can be blown away. After completion of the proposed project, the project engineer would complete a final walk-through and note any waste material left on site and any ruts or terrain damage or vegetation disturbance that has not been repaired.

2.5 Operations and Maintenance

Once fully constructed, the proposed project would be operated on an unstaffed basis and be monitored remotely, with periodic on-site personnel visitations for security, maintenance and system monitoring. Therefore, no full-time site personnel would be required on-site during operations and employees would only be on-site four times per year to wash the panels.

As the project's PV arrays produce electricity passively, maintenance requirements are anticipated to be very minimal. Any required planned maintenance activities would generally consist of equipment inspection and replacement and would be scheduled to avoid peak load periods. Any unplanned maintenance would be responded to as needed, depending on the event.

Estimated annual water consumption for operation and maintenance of the proposed project, including periodic PV module washing, would be approximately 0.81 acre-feet per year (afy). As discussed previously, the project will utilize groundwater from a proposed on-site groundwater well.

2.6 Facility Decommissioning

Solar equipment has a lifespan of approximately 20 to 25 years. At the end of the project's operation term, the applicant may determine that the project should be decommissioned and deconstructed. Should the project be decommissioned, concrete footings, foundations, and pads would be removed using heavy equipment and recycled at an off-site location. All remaining components would be removed, and all disturbed areas would be reclaimed and recontoured.

2.7 Required Project Approvals

2.7.1 Imperial County

The following are the primary discretionary approvals required for implementation of the project:

1. **Approval of CUP – Solar Energy Facility.** Implementation of the project would require the approval of a CUP by the County to allow for the construction and operation of the proposed solar energy facility project. The project site is located on one privately-owned legal parcel zoned Open Space/Preservation with a Geothermal Overlay (S-2-G). Pursuant to Title 9, Division 5, Chapter 19, the following uses are permitted in the S-2 zone subject to approval of a CUP from Imperial County: *Major facilities relating to the generation and transmission of electrical energy provide[d] such facilities are not under State or Federal law, to [be] approved*

exclusively by an agency, or agencies of the State or Federal government, and provided such facilities shall be approved subsequent to coordination review of the Imperial Irrigation District for electrical matters. Such uses shall include but be limited to the following:

- *Electrical generation plants*
- *Facilities for the transmission of electrical energy (100-200 kV)*
- *Electrical substations in an electrical transmission system (500 kv/230 kv/161 kV)*
- *Communication Towers: including radio, television, cellular, digital, along with the necessary support equipment such as receivers, transmitters, antennas, satellite dishes, relays, etc.*

2. **Approval of CUP – Groundwater Well.** Pursuant to Title 9 Division 21: Water Well Regulations, §92102.00, the Applicant will be required to obtain a CUP for the proposed on-site groundwater well. As required by §92102.00, no person shall (1) drill a new well, (2) activate a previously drilled but unused well, (unused shall mean a well or wells that have not been used for a 12 month) period by installing pumps, motors, pressure tanks, piping, or other equipment necessary or intended to make the well operational, (3) increase the pumping capacity of a well, or (4) change the use of a well, without first obtaining a CUP through the County Planning & Development Services Department.
3. **General Plan Amendment.** An amendment to the County's General Plan, Renewable Energy and Transmission Element is required to implement the proposed project. CUP applications proposed for specific renewable energy projects not located in the Renewable Energy (RE) Overlay Zone would not be allowed without an amendment to the RE Overlay Zone. APN No. 003-240-001 (in which the solar energy facility will be located), is immediately adjacent to, but outside of the RE Overlay Zone; therefore, the applicant is requesting a General Plan Amendment to include/classify APN No. 003-240-001 into the RE Overlay Zone. The underlying "Recreation" General Plan designation would remain.
4. **Zone Change.** The project site (APN No. 003-240-001) is located immediately adjacent to, but outside of the RE Overlay Zone; therefore, the applicant is requesting a zone change to include/classify APN No. 003-240-001 (which includes the solar energy facility) into the RE Overlay Zone.
5. **Variance.** A Variance is required to exceed the height limit for transmission towers within the S-2 zone. The existing S-2 zone allows a maximum height limit of 40 feet, whereas implementation of the project may involve the construction of transmission towers of up to 70 feet in height. Therefore, a Variance for any structure exceeding the existing maximum height limit of 40 feet would be required.
6. **Certification of the EIR.** After the required public review for the Draft EIR, the County will respond to written comments, edit the document, and produce a Final EIR to be certified by the Planning Commission and Board of Supervisors prior to making a decision on approval or denial of the project.

Subsequent ministerial approvals may include, but are not limited to:

- Grading and clearing permits
- Building permits
- Reclamation plan
- Encroachment permits
- Transportation permit(s)

2.7.2 Discretionary Actions and Approvals by Other Agencies

Responsible Agencies are those agencies that have discretionary approval over one or more actions involved with development of the project. Trustee Agencies are state agencies that have discretionary approval or jurisdiction by law over natural resources affected by a project. These agencies may include, but are not limited to the following:

- California RWQCB – Notice of Intent for General Construction Permit, CWA 401 Water Quality Certification
- ICAPCD – Fugitive Dust Control Plan, Rule 801 Compliance
- CDFW (Trustee Agency) – ESA Compliance, Section 1600 Streambed Alteration Agreement
- USFWS – ESA Compliance
- USACE – Section 404 of the CWA Permit

2.7.3 Potential Actions/Approvals by Other Agencies

The proposed fiber optic cable may require actions or approvals by the following agency:

- IID – for any approvals related to the fiber optic cable

3 Environmental Analysis, Impacts, and Mitigation

3.1 Introduction to Environmental Analysis

This section provides an overview of the environmental analysis and presents the format for the environmental analysis in each topical section.

3.1.1 Organization of Issue Areas

Chapter 3 provides an analysis of impacts for those environmental topics that the County determined could result in "significant impacts," based on preparation of an Initial Study and review by the County's Environmental Evaluation Committee and responses received during the scoping process, including the NOP review period and public scoping meeting. Sections 3.1 through 3.11 discuss the environmental impacts that may result with approval and implementation of the project, and where impacts are identified, recommends mitigation measures that, when implemented, would reduce significant impacts to a level less than significant. Each environmental issue area in Chapter 3 contains a description of the following:

- The environmental setting as it relates to the specific issue
- The regulatory framework governing that issue
- The threshold of significance (from Appendix G of the CEQA Guidelines)
- The methodology used in identifying and considering the issues
- An evaluation of the project-specific impacts and identification of mitigation measures
- A determination of the level of significance after mitigation measures are implemented
- The identification of any residual significant impacts following mitigation

3.1.2 Format of the Impact Analysis

This analysis presents the potential impacts that could occur under the project along with any supporting mitigation requirements. Each section identifies the resulting level of significance of the impact using the terminology described below following the application of the proposed mitigation. The section includes an explanation of how the mitigation measure(s) reduces the impact in relation to the applied threshold of significance. If the impact remains significant (i.e., at or above the threshold of significance), additional discussion is provided to disclose the implications of the residual impact and indicate why no mitigation is available or why the applied mitigation does not reduce the impact to a less than significant level.

Changes that would result from the project were evaluated relative to existing environmental conditions within the project site as defined in Chapter 2 and illustrated on Figure 2-2 (Chapter 2). Existing environmental conditions are based on the time at which the NOP was published on November 6, 2019. In evaluating the significance of these changes, this EIR applies thresholds of significance that have been developed using: (1) criteria discussed in the CEQA Guidelines; (2) criteria based on factual

or scientific information; and (3) criteria based on regulatory standards of local, state, and/or federal agencies. Mechanisms that could cause impacts are discussed for each issue area.

This EIR uses the following terminology to denote the significance of environmental impacts of the project:

- *No impact* indicates that the construction, operation, and maintenance of the project would not have any direct or indirect effects on the environment. It means no change from existing conditions. This impact level does not need mitigation.
- A *less than significant impact* is one that would not result in a substantial or potentially substantial adverse change in the physical environment. This impact level does not require mitigation, even if feasible, under CEQA.
- A *significant impact* is defined by CEQA Section 21068 as one that would cause "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project." Levels of significance can vary by project, based on the change in the existing physical condition. Under CEQA, mitigation measures or alternatives to the project must be provided, where feasible, to reduce the magnitude of significant impacts.
- An *unmitigable significant impact* is one that would result in a substantial or potentially substantial adverse effect on the environment, and that could not be reduced to a less than significant level even with any feasible mitigation. Under CEQA, a project with significant and unmitigable impacts could proceed, but the lead agency would be required to prepare a "statement of overriding considerations" in accordance with State CEQA Guidelines California Code of Regulations (CCR) Section 15093, explaining why the lead agency would proceed with the project in spite of the potential for significant impacts.

3.2 Aesthetics and Visual Resources

This section provides a description of the existing visual and aesthetic resources within the project area and relevant state and local plans and policies regarding the protection of scenic resources. Effects to the existing visual character of the project area as a result of project-related facilities are considered and mitigation is proposed based on the anticipated level of significance. The information provided in this section is summarized from the Visual Resources Technical Report (Appendix B of this EIR) and Glare Hazard Analysis Report (Appendix C of this EIR) prepared by Stantec.

3.2.1 Existing Conditions

The project site is located north-northeast of the intersection of Wilkins Road and an unnamed county road, about 3 miles north of the unincorporated town of Niland. Niland is the northernmost community within the agricultural portion of the Imperial Valley, which extends from the southeastern portion of the Salton Sea to the United States and Mexico border. The 45-mile-long and 20-mile-wide Salton Sea defines the landscape to the west of the project site. Elevations within the project site range from nearly 50 feet below sea level to 30 feet above mean sea level (amsl). With elevations extending to 277 feet below sea level, the Salton Sea sits comparatively lower in the landscape than the project site, as does much of the agricultural land to the immediate west and lands to the south. To the north and east of the project site are the Chocolate Mountains, which extend to heights of more than 2,000 feet amsl.

Because of this gradual downward slope from east to west within the project site and its surroundings, areas to the north and east of the project site would be more likely to have views of the project where views are not impeded by natural or built features. Viewers in this area are associated with land uses. Thus, potential viewers include workers traveling north/south on Gas Line Road, which extends north from Niland Avenue – near IID facilities and an existing solar power facility – to a facility northeast of the project site. Further away, to the southeast and just slightly higher in elevation than the project site, are Slab City and Salvation Mountain. Slab City is a former military facility that now serves as the site of an informal community for artists, travelers, and winter-time recreational vehicle (RV) campers. Salvation Mountain is an outdoor art project at the western entrance to Slab City. Both attract tourists and sight-seers. However, topography, intervening structures, and distance limit and obscure visibility of the project site in direct views from publicly accessible portions of these areas.

Land uses to the west and south include agricultural production and dispersed rural residences, and desert lands. The closest residences are aligned along Wilkins Road and an unnamed private road. The segments of these roads closest to the southwest corner of the project site are generally lower in altitude than the project site by approximately 20 feet, which reduces visibility of the project site. Areas further away – including the aforementioned IID facilities approximately 2 miles to the south, Niland and the State Route (SR) 111 corridor approximately 3 miles to the southwest, and the Wister Waterfowl Management Area approximately 3 miles to the west beyond the SR 111 corridor – are also lower in elevation, and thus do not afford direct views of the project site from public vantage points.

Views in this area are expansive and are generally characterized by sparse development framed by topographical features. Low-profile, weedy plants, such as salt cedar and russian thistle, typical of this portion of the Colorado Desert, are widespread on undeveloped and unfarmed lands, and ruderal vegetation is found along waterways associated with IID canals. Individual residences, transmission lines, transportation corridors (including roads and railroads), and agricultural equipment are discernable in the foreground (within 0.25 mile) and middleground (0.25 to 3-5 miles away) views

throughout the area. Geothermal plants in the vicinity of the Salton Sea are visible in most views to the west. They are identifiable by their vapor plumes. These views to the west from the project site are backdropped by the Santa Rosa Mountains and Vallecito Mountains. Views to the east are backdropped by the Chocolate Mountains.

Scenic Vista

Scenic vistas are typically expansive views from elevated areas. They may or may not be part of a designated scenic overlook or other area providing a static vista view of a landscape. The project site is located in a rural portion of Imperial County and is not located within an area containing a scenic vista designated by the State or the County's General Plan.

Scenic Highways

According to the Conservation and Open Space Element, no State scenic highways have been designated in Imperial County (County of Imperial 2016). The project site is not located within a state scenic highway corridor, nor are there any state scenic highways located in proximity to the project site. The nearest road segment considered eligible for a State scenic highway designation is the portion of SR 111 from Bombay Beach to the County line. The project site is located approximately 14 miles southeast of Bombay Beach and so would not be visible from this location.

Visual Character

Aerial imagery was reviewed to identify where the project would potentially be visible from visually sensitive areas and selected preliminary viewpoints for site photography. Field surveys were conducted to photo-document existing visual conditions and views toward the project site. A representative subset of photographed viewpoints was selected as Key Observation Points (KOP). Assessments of existing visual conditions were made based on professional judgment that took into consideration sensitive receptors and sensitive viewing areas in the project area. The locations of the two KOPs in relation to the project site are presented on Figure 3.2-1.

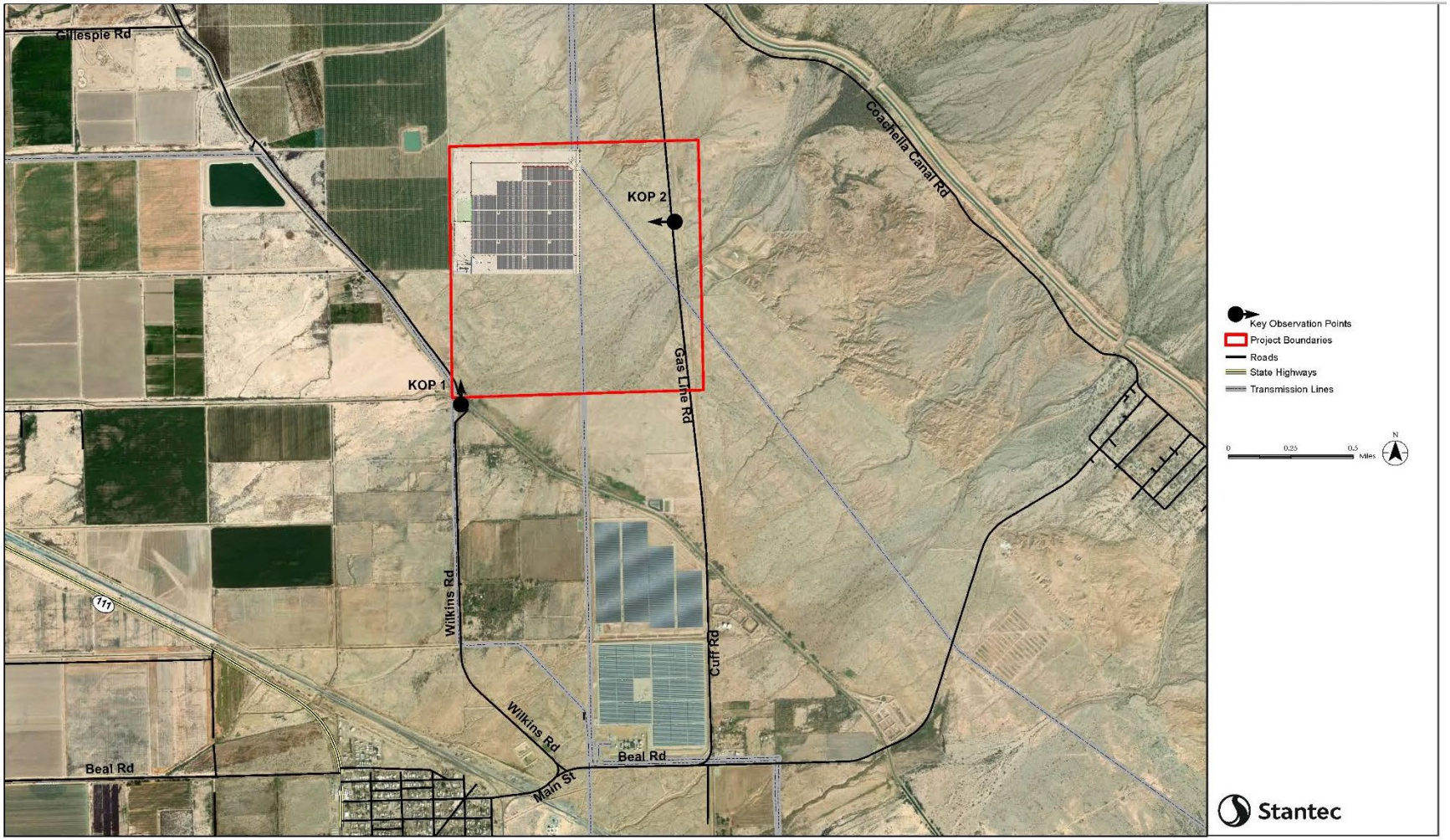
KEY OBSERVATION POINT 1

KOP 1 is located along Wilkins Road, at its intersection with an unnamed private road, adjacent to the southwest corner of the project site. The view from KOP 1 is to the north, toward the proposed project's solar arrays and substation (Figure 3.2-2).

This viewpoint represents views from an identifiable point along the most proximate roadway, where topography allows visibility of the project site. This view is characterized by the contrast between the vegetated and relatively flat area in the foreground and middleground of the view and Chocolate Mountains backdrop, which appears multi-colored and defines the skyline with its jagged and irregular form.

The tree in the center of the view, as well as other vegetation, partially blocks views toward the project site. A utility tie-in pole is visible on the far side of Wilkins Road in the left half of the view.

Figure 3.2-1. Key Observation Points



Source: Appendix B of this EIR

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Figure 3.2-2. Existing View at Key Observation Point 1

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KEY OBSERVATION POINT 2

KOP 2 is located along Gas Line Road, 2.2 miles north of Beal Road and just under 0.5 mile east of the project site. Multiple transmission lines are visible extending across the view, with a tubular-steel pole in the immediate foreground and the H-frame towers appearing in front of the project site (Figure 3.2-3).

This viewpoint represents views from workers and travelers along the north-south oriented Gas Line Road as well and from the broader, slightly uphill area to the east. The view is characterized by the visible striations, or the layered qualities of what appear in view as linear elements. Beyond the project site is another transmission line, an orchard that appears linear in form from this vantage point, and the railroad and SR 111 corridor, which is not discernible in this view.

The Salton Sea appears here as a strip of royal blue hue across the middleground of most of the view, beyond which are the Santa Rosa and Vallecito Mountains. While jagged and uneven, the distant mountain skyline's linear qualities are accentuated in this view due to the layer of snow visible along numerous peaks and upper extents of the mountain. The gradual downward slope of the project site is apparent only by reference to further, observably lower elements in the view.

Light, Glare, and Glint

Glare is considered a continuous source of brightness, relative to diffused light, whereas glint is a direct redirection of the sun beam in the surface of a PV solar module. Glint is highly directional, since its origin is purely reflective, whereas glare is the reflection of diffuse irradiance; it is not a direct reflection of the sun.

The project site is currently vacant and does not generate any light or glare. The majority of the light and glare in the project vicinity is a result of motor vehicles traveling on surrounding roadways, airplanes, and farm equipment. Local roadways generate glare both during the night hours when cars travel with lights on, and during daytime hours because of the sun's reflection from cars and pavement surfaces.

The Chocolate Mountains are located to the north and east of the project site. The Chocolate Mountain Aerial Gunnery Range is used by the United States Marine Corps (USMC) for training purposes.

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Figure 3.2-3. Existing View at Key Observation Point 2

Source: Appendix B of this EIR

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3.2.2 Regulatory Setting

This section identifies and summarizes laws, policies, and regulations that are applicable to the project.

State

CALIFORNIA DEPARTMENT OF TRANSPORTATION

Caltrans manages 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 scenic corridor.

Local

IMPERIAL COUNTY GENERAL PLAN

The Imperial County General Plan contains policies for the protection and conservation of scenic resources and open spaces within the County. These policies also provide guidance for the design of new development. The Conservation and Open Space Element of the General Plan provides specific goals and objectives for maintaining and protecting the aesthetic character of the region. Table 3.2-1 provides an analysis of the project's consistency with the Conservation and Open Space Element Goal 5. Additionally, the Circulation and Scenic Highways Element of the General Plan provides policies for protecting and enhancing scenic resources within highway corridors in Imperial County, consistent with the Caltrans State Scenic Highway Program.

COUNTY OF IMPERIAL LAND USE ORDINANCE, TITLE 9

The County's Land Use Ordinance Code provides specific direction for lighting requirements.

Division 17: Renewable Energy Resources, Section 91702.00 – Specific Standards for All Renewable Energy Projects

(R) Lights should be directed or shielded to confine direct rays to the Project site and muted to the maximum extent consistent with safety and operational necessity.

Table 3.2-1. Consistency with Applicable General Plan Conservation and Open Space Policies

General Plan Policies	Consistency with General Plan	Analysis
Goal 5: The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity.	Consistent	As described in Section 3.2.3, in close views, the proposed project would be visible and identifiable, resulting in some changes to the existing visual character of the project site. However, such views of the proposed project would be limited in both duration and availability. The majority of the portion of the Imperial Valley where the project site is located is dedicated to agricultural production and power production and transmission. Desert lands are generally located north and east of the East Highline Canal. The project site is located on the eastern edge of active agricultural lands with desert lands located immediately to the east and beyond. The proposed project would not substantially degrade the existing visual character or quality of views as the limited views available to the project site would appear absorbed into the broader landscape that already includes agricultural development, electricity transmission, geothermal power plants, IID facilities and infrastructure, and existing utility-scale solar facilities. The proposed project would not result in a significant deterioration in the visual character of the project site or surrounding area.
Objective 5.1: Encourage the conservation and enhancement of the natural beauty of the desert and mountain landscape.	Consistent	The project site is located on the eastern edge of active agricultural lands with desert lands located immediately to the north and east and beyond. The solar arrays (up to 15 feet high at maximum rotation angle) would not create a permanent visual obstruction for the background views of the desert or Chocolate Mountains. The solar arrays would be relatively low profile in the context of the mountains in the background. The proposed project would be absorbed into the broader landscape that already includes agricultural development, electricity transmission, geothermal power plants, IID facilities and infrastructure, and existing utility-scale solar facilities. With their relatively low profile, and in the context of topographical conditions, the project would not obstruct views of desert or mountain areas to the north and east of the project site.

Source: County of Imperial 2016

3.2.3 Impacts and Mitigation Measures

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to aesthetics are considered significant if any of the following occur:

- Have a substantial adverse effect on a scenic vista
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

Methodology

VISUAL CHANGE

A comparison of the project site's existing conditions and the change to the visual character of the landscape with implementation of the project is based on the production of visual simulations. As a part of this process, aerial imagery was reviewed to identify where the project would potentially be visible from visually sensitive areas and selected preliminary viewpoints for site photography. Field surveys were conducted to photo-document existing visual conditions and views toward the project site. A representative subset of photographed viewpoints was selected as KOPs, which collectively serve as the basis for this assessment. Assessments of existing visual conditions were made based on professional judgment that took into consideration sensitive receptors and sensitive viewing areas in the project area. The locations of the two KOPs in relation to the project site are presented on Figure 3.2-1.

The site photos were used to generate a rendering of the existing conditions and a proposed visualization of the proposed project. The visual simulations provide clear before-and-after images of the location, scale, and visual appearance of the features affected by and associated with the project. Design data — consisting of engineering drawings, elevations, site and topographical contour plans, concept diagrams, and reference pictures — were used as a platform from which digital models were created. In cases where detailed design data were unavailable, more general descriptions about alternative facilities and their locations were used to prepare the digital models.

GLARE/GLINT

The web-based ForgeSolar Pro glare hazard analysis program was utilized to perform the glare/glint analysis of the proposed project. ForgeSolar provides a quantified assessment of (1) when and where glare will occur throughout the year for a prescribed solar installation, (2) potential effects on the human eye at locations where glare occurs, (3) a general map showing where glare is coming from within an array, and (4) the annual energy production from the PV array so that alternative designs can be compared to maximize energy production while mitigating the impacts of glare. ForgeSolar employs an interactive Google Map for site location, mapping the proposed PV array(s), and specifying

observer locations or flight paths. Latitude, longitude, and elevation are automatically recorded through the Google Interface, providing necessary information for sun position and vector calculations. Additional information regarding the orientation and tilt of the PV panels, reflectance, environment, and ocular factors are entered by the user.

Flight Path Analysis. The glare study analyzed the flight path provided by the USMC (Figure 3.2-4) and two observation points at ground level. If glare is found, the tool calculates the retinal irradiance and subtended angle (size/distance) of the glare source to predict potential ocular hazards ranging from temporary after-image to retinal burn.

Adjacent Roadways. Two observation points (Figure 3.2-1) were analyzed for vehicles travelling along adjacent roads:

- Intersection of Wilkins and an unnamed county road
- Gas Line Road

Potential glare to drivers was evaluated for both passenger vehicles and semi-trucks, where the passenger vehicles were assumed to have a maximum viewing height of 5 feet while the viewing height for drivers of semi-trucks was assumed to be a maximum of 9 feet.

Figure 3.2-4. Flight Path Analysis

Source: Appendix C of this EIR

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Impact Analysis – Solar Energy Facility and Gen-Tie Line

Impact 3.2-1 Would the project have a substantial adverse effect on a scenic vista?

There are no designated scenic vistas in the project vicinity. The proposed project would involve the use of standard construction equipment including, but limited to, trucks, cranes, and tractors. The presence of this equipment within the project area during construction would alter views of the area from undeveloped land to a construction site. However, the views of construction activity from the surrounding vicinity would be temporary and would not involve any designated scenic vistas. Therefore, impacts to a scenic vista are considered less than significant during construction.

Views to the west from elevated areas near the project site, including views from Gas Line Road (KOP 2), could be considered scenic vistas given the expansiveness of the views and distance one can see under favorable conditions. However, as described under Impact 3.2-3, the project would not have a substantial adverse effect on such views. The proposed project would not be a prominent visual presence in the context of the surrounding development, as it would largely be absorbed into the broader landscape that already includes agricultural development, electricity transmission, geothermal power plants, IID facilities and infrastructure, and an existing utility-scale solar facility 0.5 mile to the south. Also, the project's low profile in the context of topographical conditions would not obscure or degrade views of the desert lands and mountains north and east of the site. Therefore, impacts to a scenic vista would be less than significant during project operation.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.2-2 Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The project site is not located within a state scenic highway corridor, nor are there any state scenic highways located in proximity to the project site. The nearest road segment considered eligible for a State Scenic Highway designation is the portion of SR 111 from Bombay Beach to the County line. The project site is located approximately 14 miles south of Bombay Beach. Therefore, no impacts to scenic resources within a designated state scenic highway would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.2-3 In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Short-term visual impacts would occur in association with construction activities, including introducing heavy equipment (e.g., cranes), staging and materials storage areas and potential dust and exhaust to the project area. While construction equipment and activity may present a visual nuisance, it is temporary (approximately 6-9 months) and does not represent a permanent change in views.

Therefore, impacts associated with degrading the existing visual character or quality of the project site during construction are considered less than significant.

Figure 3.2-5 and Figure 3.2-6 illustrates the visual changes from KOP 1 and KOP 2 with the proposed project.

KEY OBSERVATION POINT 1

Figure 3.2-5 shows the view from KOP 1 with the proposed project simulated. As simulated, the gen-tie structures, which would extend from the project site approximately 2,500 feet toward the KOP, would be the most prominently visible portion of the project from this location. As conceptually shown in the simulation, the gen-tie structures would be visible in the center of the view and the southernmost structure would connect to the existing IID line in the left edge of the view, replacing the current interconnection to the parcel. The photosimulation illustrates that while appearing as new and highly visible features, the transmission structures would be comparable in size and appearance to other existing structures and would blend with the numerous lines visible throughout the landscape, including the existing line to which the project would interconnect. They would also occupy a relatively narrow portion of the view to the north from KOP 1.

The substation for the proposed project has not yet been designed. However, the facility shown on Figure 3.2-5 is an approximation based on representative examples of substations of similar size and in similar environments. The proposed substation would be low-profile and would be approximately 300 feet by 175 feet. As simulated, the substation would be partially visible in views from KOP 1, alongside the solar arrays, which would appear as a comparatively dark, horizontal bar across a portion of the view's middle ground. Aside from the relatively narrow gen-tie structures, no project component would substantially obscure or appear above the mountain skyline from this vantage point.

KEY OBSERVATION POINT 2

Figure 3.2-6 shows the view from KOP 2 with the proposed project simulated. The proposed project appears within the front portion of the view's middleground, within the layered landscape described for the existing view. From 0.5 mile away and at a slightly higher elevation, the project would appear as a generally uniform line across the view, with solar arrays broken up by internal roads. The substation would be detectable beyond the arrays in the southern portion of the project site, and the gen-tie structures would be visible extending to the south from the project site. The land east of the Salton Sea would serve as backdrop to the substation, which the gen-tie poles would appear against the water body, itself.

Portions of the landscape beyond the project, including the orchard, would be obscured by the project. The blue-toned color of the arrays under conditions simulated here (morning light, mostly sunny skies) would be similar to that of the Salton Sea, the southeastern shoreline of which would remain visible beyond the project. This would distinguish the project from the Salton Sea in this view, reinforcing their respective scales. With this definition, the size of the proposed project relative to the broader landscape, and its visual similarity to – but physical distinction from – a body of water, would be observable by workers and travelers along the north-south oriented Gas Line Road as well and from the broader, slightly uphill area to the east. The overall effect, shown in Figure 3.2-6, is the relatively small degree of contrast that the project would have with its broader surroundings, as seen in the expansive, slightly uphill views from the east.

CONCLUSION

In the close-up, unobstructed views of the project, the existing visual character of the site and the quality of views in terms of visibility beyond the site would be substantially altered. However, such immediate views of the project site are not readily available to the general public from a publicly accessible vantage point.

In the view from KOP 1, new transmission structures that would be part of the project's interconnection and would appear large in scale; however, the new transmission structure would be comparable in size and appearance to other structures visible throughout the surrounding landscape with multiple existing transmission lines. The view from KOP 1 affords a direct line-of-sight from the nearest public roadway into the project site. Any view from other nearby publicly accessible viewpoints, including from points further north or south along Wilkins Road or east along Wiest Road, would be partially to fully obscured by roadside vegetation or berms. Like the view from KOP 1, such views would likely be of short duration given the probability of the viewers being in moving vehicles.

The view from KOP 2 represents elevated views from the nearest roadway to the east. The project would not substantially degrade the existing visual character or quality of views from this distance; rather, it would appear as a similar element within the existing context of the broader landscape that already includes agricultural development, electricity transmission poles and lines, geothermal power plants, IID facilities and infrastructure, and an existing utility-scale solar facility 0.5 mile to the south. Therefore, the project elements would not constitute a substantial degradation of the existing visual character from both KOP 1 and KOP 2, and impacts to visual character would be less than significant.

Mitigation Measure(s)

No mitigation measures are required.

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Figure 3.2-5. Project View Simulation at Key Observation Point 1

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Figure 3.2-6. Project View Simulation at Key Observation Point 2

Source: Appendix B of this EIR

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Impact 3.2-4 Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

As described in Chapter 2, Project Description, the project would include new sources of nighttime lighting. In addition, given the nature of the project (e.g., solar facility), this discussion also considers potential glare- and glint-related impacts generated by the proposed solar arrays. This discussion considers each issue under the associated headings below.

NIGHTTIME LIGHTING

Minimal lighting would be required for project operation and would be limited to safety and security functions. All lighting would be directed downward and shielded to confine direct rays to the project site and muted to the maximum extent consistent with safety and operational necessity (Title 9, Division 17, Chapter 2: Specific Standards for all Renewable Energy Projects, of the County's Zoning Ordinance).

If additional lighting should be required for nighttime maintenance, portable lighting equipment would be used. Based on these considerations, and the distance to potential viewers, the project is not anticipated to create a new source of substantial light which would adversely affect nighttime views in the project area, and the impact is considered less than significant.

GLARE AND GLINT

A glare hazard analysis was prepared to analyze the project's potential glare/glint impacts on USMC's training operations and adjacent roadway travelers. The complete report is provided as Appendix C of this EIR.

Flight Path Analysis. The glare study analyzed the flight path provided by the USMC (Figure 3.2-4) and two observation points at ground level. Based on the glare analysis (Appendix C of this EIR), glare is not expected for the flight path provided by the USMC. Therefore, the proposed project would not result in ocular hazards to USMC flight operations.

Adjacent Roadways. Two observation points (Figure 3.2-1) were analyzed for vehicles travelling along adjacent roads:

- Intersection of Wilkins and an unnamed county road
- Gas Line Road

Based on the glare analysis (Appendix C of this EIR), glare is not predicted for drivers of vehicles at the two observation points (Intersection of Wilkins and an unnamed county road, and Gas Line Road) adjacent to the project site at either 5 feet (cars and small trucks) or 9 feet (semi-trucks) viewing heights. Therefore, the proposed project would not result in a significant glare impact to motorists driving on roadways adjacent to the project site.

Mitigation Measure(s)

No mitigation measures are required.

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. No new transmission structures would be required to install the fiberoptic cable. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. The additional cable would be comparable in material and appearance to the existing cables on the transmission poles. The proposed fiber optic cable would result in a less than significant impact on a scenic vista, state scenic highway, degrade the existing visual character or quality of the site and its surroundings, or create a new source of light or glare.

3.2.4 Decommissioning/Restoration and Residual Impacts

Decommissioning/Restoration

If at the end of the PPA term, no contract extension is available for a power purchaser, no other buyer of the energy emerges, or there is no further funding of the project, the project will be decommissioned and dismantled. The project site is relatively flat and primarily characterized by a level elevation. Therefore, no grading or significant land form modifications would be required during decommissioning activities upon site restoration in the future. Although the project site would be visually disrupted in the short-term during decommissioning activities, because extensive grading is not required and these activities would be temporary, the visual character of the project site would not be substantially degraded in the short-term and related impacts would be less than significant.

Residual

Impacts related to glare and glint impacts to roadway travelers and USMC flight operations would be less than significant and no additional mitigation measures are required. Changes to visual character of the project area would be less than significant and would be transitioned back to their prior (pre-solar project) conditions following site decommissioning. Based on these conclusions, implementation of the project would not result in residual significant unmitigable impacts to the visual character of the project area or add substantial amounts of light and glare.

3.3 Air Quality

This section includes an overview of the existing air quality within the project area and identifies applicable local, state, and federal policies related to air quality. The impact assessment provides an evaluation of potential adverse effects on air quality based on criteria derived from the CEQA Guidelines and Imperial County Air Pollution Control District's (ICAPCD) Air Quality Handbook in conjunction with actions proposed in Chapter 2, Project Description. Stantec prepared an *Air Quality Technical Study* that assesses the potential air quality and climate change impacts of the Wister Solar Energy Facility Project. This report is included in Appendix D of this EIR.

3.3.1 Existing Conditions

Regional Setting

The project is located in Imperial County within the Salton Sea Air Basin (SSAB). The SSAB consists of all of Imperial County and a portion of Riverside County. Both the Imperial County Air Pollution Control District (ICAPCD) and South Coast Air Quality Management District (SCAQMD) have jurisdiction within the SSAB. The ICAPCD has full jurisdiction within all Imperial County and SCAQMD only has jurisdiction within Riverside County. As an arid desert region, the SSAB's climate is largely governed by the large-scale sinking and warming of air within the semi-permanent subtropical high-pressure center over the Pacific Ocean. When the fringes of mid-latitude storms pass through the Imperial Valley in winter, the coastal mountains create a strong "rain shadow" effect that makes Imperial Valley the second driest location in the U.S.

The lack of clouds and atmospheric moisture creates strong diurnal and seasonal temperature variations ranging from an average summer maximum of 108 degrees (°) Fahrenheit down to a winter morning minimum of 38° Fahrenheit. The most pleasant weather occurs from about mid-October to early May when daily highs are in the 70s and 80s with very infrequent cloudiness or rainfall. Imperial County experiences significant rainfall an average of only four times per year. The rainy period of the year lasts for 3.4 months, from December 4 to March 16, with a sliding 31-day rainfall of at least 0.5 inch. The rainless period of the year lasts for over 8 months, from March to early December.

Temperature inversions and light nighttime winds trap any local air pollution emissions near the ground. The area is subject to frequent hazy conditions at sunrise, followed by rapid daytime dissipation as winds pick up and the temperature warms. During periods of strong solar heating and intense convection, turbulent motion creates good mixing and low levels of air pollution. The SSAB experiences surface inversions almost every day of the year. These inversions often last for long periods of time, which allows for air stagnation and buildup of pollutants, including ozone.

Winds in the area are driven by a complex pattern of local, regional, and global forces, but primarily reflect the temperature difference between the cool ocean to the west and the heated interior of the entire desert southwest. For much of the year, winds flow predominantly from the west to the east. In summer, intense solar heating in the Imperial Valley creates a more localized wind pattern, as air comes up from the southeast via the Gulf of California.

Imperial County is predominately agricultural land, which is a factor in the cumulative air quality of the SSAB. Agricultural production generates dust and small particulate matter through the use of agricultural equipment on unpaved roads, land preparation, and harvest practices. Imperial County experiences unhealthful air quality from photochemical smog and from dust because of extensive surface disturbance and the very arid climate.

Major Air Pollutants

Criteria Pollutants

Air quality is defined by ambient air concentrations of specific pollutants determined by the U.S. Environmental Protection Agency (U.S. EPA) to be of concern with respect to the health and welfare of the general public. Seven major pollutants of concern, called criteria pollutants, are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM) which is broken down for regulatory purposes into PM_{10}, $PM_{2.5}$, and lead (Pb). The California Air Resources Board (CARB) also identifies sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles as criteria pollutants. Table 3.3-1 describes the health effect of these criteria pollutants.

Table 3.3-1. Health Effects of Criteria Air Pollutants

Air Pollutant	Health Effects
CO	• Chest pain in patients with heart disease • Headache • Light-headedness • Reduced mental alertness
SO_2	• Worsening of asthma: increased symptoms, increased medication usage, and emergency room visits
NO_2	• Lung irritation • Enhanced allergic responses
O_3	• Respiratory symptoms • Worsening of lung disease leading to premature death • Damage to lung tissue
PM_{10} and $PM_{2.5}$	• Premature death • Hospitalization for worsening of respiratory disease • Asthma-related emergency room visits
Pb	• Impaired mental functioning in children • Learning disabilities in children • Brain and kidney damage
Sulfates	• Worsening of asthma and other lung diseases
Hydrogen Sulfide	• At high concentrations: headache and breathing difficulties
Vinyl Chloride	• Central nervous effects, such as dizziness, drowsiness, and headaches • Long-term exposure: liver damage and liver cancer

Table 3.3-1. Health Effects of Criteria Air Pollutants

Air Pollutant	Health Effects
Visibility Reducing Particles	• Premature death • Hospitalization for worsening of respiratory disease • Asthma-related emergency room visits

Source: CARB 2020
Notes:
CO – carbon monoxide; NO_2 – nitrogen dioxide; O_3 – ozone; Pb – lead; $PM_{2.5}$ – particulate matter less than 2.5 microns in diameter;
PM_{10} - particulate matter less than 10 microns in diameter; SO_2 – sulfur dioxide

Toxic Air Contaminants

Toxic air contaminants (TAC) are substances that have the potential to be emitted into the ambient air that have been determined to present some level of acute or chronic health risk (cancer or non-cancer) to the general public. These pollutants may be emitted in trace amounts from various types of sources, including combustion sources. There are almost 200 compounds that have been designated as TACs in California. The 10 TACs posing the greatest known health risk in California, based primarily on ambient air quality data, are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, formaldehyde, methylene chloride, para-dichlorobenzene, perchloroethylene, and diesel particulate matter.

Attainment Status

As shown in Table 3.3-2, Imperial County is currently designated as nonattainment for O_3 and PM_{10} under state standards. Under federal standards, the County is in marginal nonattainment for O_3, serious nonattainment for PM_{10}, and moderate nonattainment for $PM_{2.5}$. The area is currently in attainment or unclassified status for all other ambient air quality standards.

Table 3.3-2. Attainment Status of Imperial County

Pollutant	Federal Designation	State Designation
O_3 [1]	Marginal Nonattainment	Nonattainment
PM_{10}	Serious Nonattainment	Nonattainment
$PM_{2.5}$	Moderate Nonattainment – partial[2]	Attainment
CO	Unclassified/Attainment	Attainment
NO_2	Unclassified/Attainment	Attainment
SO_2	Attainment	Attainment
Pb	Unclassified/Attainment	Attainment
H_2S	—	Unclassified
Sulfates	—	Attainment

Table 3.3-2. Attainment Status of Imperial County

Pollutant	Federal Designation	State Designation
Visibility Reducing Particles	—	Unclassified

Source: Appendix D of this EIR

Notes: = Not Identified/No Status

[1] The SSAB is marginal nonattainment for the 2015 ozone standard and moderate attainment for the 2008 standard.

[2] Only the Imperial Valley portion of the County is nonattainment for $PM_{2.5}$ NAAQS

CO – carbon monoxide; NO_2 – nitrogen dioxide; O_3 – ozone; Pb – lead; $PM_{2.5}$ – particulate matter less than 2.5 microns in diameter; PM_{10} - particulate matter less than 10 microns in diameter; SO_2 – sulfur dioxide

Local Ambient Air Quality

Air pollutants transported into the SSAB from the adjacent South Coast Air Basin (Los Angeles, San Bernardino County, Orange County, and Riverside County) and from Mexicali, Mexico substantially contribute to the non-attainment conditions in the SSAB.

The closest most representative air quality monitoring station to the project site is the Niland Monitoring Station located at 7711 English Road, Niland, CA 92257, approximately 4.5 miles southwest from the project site. However, the Niland Monitoring Station only monitors ozone and PM_{10}. Thus, monitoring data collected for $PM_{2.5}$ is from the Brawley Monitoring Station located at 220 Main Street, Brawley, CA 92227, approximately 20 miles south of the project site.

Table 3.3-3 shows pollutant levels, the state and federal standards, and the number of exceedances recorded at these stations from 2013 to 2017. As shown in Table 3.3-3, the state 1-hour O_3 standard was exceeded in 2013, and the 8-hour O_3 standard was exceeded from 2013-2015. The national 24-hour PM_{10} standard was exceeded from 2014-2017, and the state 24-hour $PM_{2.5}$ standard was exceeded from 2016-2017.

Table 3.3-3. Criteria Air Pollutants – Ambient Data Summary

Pollutant	Averaging Time	Standard	Maximum Concentration				
			2013	2014	2015	2016	2017
O_3	1-Hour	Maximum Concentration (ppm)	0.102	0.081	0.091	0.079	0.072
		Days > CAAQS (0.09 ppm)	1	0	0	0	0
	8-Hour	Maximum Concentration (ppm)[a]	0.083	0.075	0.074	0.066	0.061
		Days > NAAQS (0.07 ppm)	5	2	5	0	0

Table 3.3-3. Criteria Air Pollutants – Ambient Data Summary

Pollutant	Averaging Time	Standard	Maximum Concentration				
			2013	2014	2015	2016	2017
PM_{10}	24-Hour	Maximum concentration ($\mu g/m^3$) – National	144	173	250	226	345
		Maximum concentration ($\mu g/m^3$) – State	333	276	260	231	*
		Days > NAAQS (150 $\mu g/m^3$)	0	6	6	6	4
		Days > CAAQS (50 $\mu g/m^3$)	145	124	104	87	*
	Annual	State Annual Average (20 $\mu g/m^3$)	51.5	50.6	46.11	40.7	n/a
$PM_{2.5}$[c]	24-Hour	Maximum concentration ($\mu g/m^3$)	23.1	24.3	29.5	57.9	46.1
		Days > NAAQS (35 $\mu g/m^3$)	0	0	0	6	3
		National Std. 98th Percentile [b]	17	20	12	32	27
	Annual	National Annual (12.0 $\mu g/m^3$)	7.2	7.3	6.6	11.3	9.4

Source: Appendix D of this EIR

Notes:

Ambient data for CO, NO_2, SO_2 and airborne lead are not included in this table since the entire Imperial County is currently in compliance with state and federal standards for these pollutants.

*The estimated number of measured concentrations above national standards are shown in **bold**.*

[a] *The 8-hour ozone standard is attained when the fourth highest concentration in a year, averaged over 3 years, is less than or equal to the new national standard of 0.07 ppm. (Values listed in table represent midnight-to-midnight 24-hour averaged and exclude exceptional events.)*

[b] *Attainment condition for $PM_{2.5}$ is that the 3-year average of the 98th percentile of 24-hour concentrations at each monitor within an area must not exceed the standard.*

[c] *O_3 and PM_{10} data are from the Niland Monitoring Station. $PM_{2.5}$ concentrations are not measured at Niland station; the listed data are from the Brawley Monitoring Station.*

AAM – Annual Arithmetic Mean; CAAQS – California Ambient Air Quality Standards; $\mu g/m^3$ – micrograms per cubic meter; NAAQS – National Ambient Air Quality Standards; ppm – parts per million; n/a – sufficient data not available to determine the value; O_3 – ozone; PM_{10} - particulate matter less than 10 microns in diameter; $PM_{2.5}$ – particulate matter less than 2.5 microns in diameter

Sensitive Receptors

High concentrations of air pollutants pose health hazards for the general population, but particularly for the young, the elderly, and the sick. Typical health problems attributed to smog include respiratory ailments, eye and throat irritations, headaches, coughing, and chest discomfort. Certain land uses are considered to be more sensitive to the effects of air pollution. Schools, hospitals, residences, and other facilities where people congregate, especially children, the elderly and infirm, are considered particularly sensitive to air pollutants.

The project site is in a generally rural area and surrounded by relatively undisturbed desert lands. Agricultural fields are located to the west of the site. Sensitive receptors located within one mile of the project site consist of a few scattered rural homes west of the site. There are no sensitive receptors within 1,500 feet of the project site boundary.

3.3.2 Regulatory Setting

This section identifies and summarizes federal, state, and local laws, policies, and regulations that are applicable to the project.

Federal

Clean Air Act

The Federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, is the primary federal law that governs air quality. The Federal CAA delegates primary responsibility for clean air to the U.S. EPA. The U.S. EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the act, the U.S. EPA has established the National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants that are pervasive in urban environments and for which state and national health-based ambient air quality standards have been established. O_3, CO, NO_2, SO_2, Pb, PM_{10}, and $PM_{2.5}$ are the six criteria air pollutants. Ozone is a secondary pollutant, Nitrogen oxides (NOx) and volatile organic compounds (VOCs) are of particular interest as they are precursors to ozone formation. In addition, national standards exist for Pb. The NAAQS standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision.

The Federal CAA requires EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The federal standards are summarized in Table 3.3-4.

State

California Clean Air Act

The California Clean Air Act (CCAA) was adopted by the California Air Resources Board (CARB) in 1988. The CCAA is responsible for meeting the state requirements of the Federal CAA and for establishing the California Ambient Air Quality Standards (CAAQS). CARB oversees the functions of local air pollution control districts and air quality management districts, which, in turn, administer air quality activities at the regional and county levels. The CCAA, as amended in 1992, requires all air districts of the state to achieve and maintain the CAAQS by the earliest practical date.

The CCAA requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous 3 calendar years. As shown in Table 3.3-4, the CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as nonattainment.

California State Implementation Plan

The CAA mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items which are included in the California SIP.

Table 3.3-4. Ambient Air Quality Standards

Air Pollutant	Averaging Time	California Standard	National Standard
O_3	1-hour 8-hour	0.09 ppm 0.070 ppm	-- 0.070 ppm
PM_{10}	24-hour Mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 --
$PM_{2.5}$	24-hour Mean	-- 12 µg/m^3	35 µg/m^3 12.0 µg/m^3
CO	1-hour 8-hour	20 ppm 9.0 ppm	35 ppm 9 ppm
NO_2	1-hour Mean	0.18 ppm 0.030 ppm	100 ppb 0.053 ppm
SO_2	1-hour 24-hour	0.25 ppm 0.04 ppm	75 ppb --
Pb	30-day Rolling 3-month	1.5 µg/m^3	-- 0.15 µg/m^3
Sulfates	24-hour	25 µg/m^3	No federal standard
Hydrogen sulfide	1-hour	0.03 ppm	
Vinyl chloride	24-hour	0.01 ppm	
Visibility-reducing particles	8-hour	Extinction coefficient of 0.23 per kilometer, visibility of 10 miles or more because of particles when relative humidity is less than 70 percent	

Source: Appendix D of this EIR

CO – carbon monoxide; mean – annual arithmetic mean; NO_2 – nitrogen dioxide; O_3 – ozone; Pb – lead; $PM_{2.5}$ – particulate matter less than 2.5 microns in diameter; PM_{10} - particulate matter less than 10 microns in diameter; ppb – parts per billion; ppm - parts per million; SO_2 – sulfur dioxide; µg/m^3 – micrograms per cubic meter

Toxic Air Contaminants Regulation

TAC sources include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources. The TACs that are relevant to the implementation include diesel particulate matter (DPM) and airborne asbestos.

In August 1998, ARB identified diesel particulate matter (DPM) emissions from diesel-fueled engines as a TAC. In September 2000, ARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel fueled engines and vehicles. The goal of the plan is to reduce diesel PM_{10} (inhalable particulate matter) emissions and the associated health risk by 75 percent in 2010 and by 85 percent by 2020. The plan identified 14 measures that target new and existing on-road vehicles (e.g., heavy duty trucks and buses, etc.), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps, etc.), and stationary engines (e.g., stand-by power generators, etc.).

Regional

Imperial County Air Pollution Control District

The Imperial County Air Pollution Control District (ICAPCD) is the agency responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. ICAPCD is responsible for regulating stationary sources of air emissions in Imperial County. Stationary sources that have the potential to emit air pollutants into the ambient air are subject to the Rules and Regulations adopted by ICAPCD. ICAPCD is responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases. Monitoring of ambient air quality in Imperial County began in 1976. Since that time, monitoring has been performed by ICAPCD, CARB, and by private industry. There are six monitoring sites in Imperial County from Niland to Calexico. The ICAPCD has developed the following plans to achieve attainment for air quality ambient standards.

- **2017 Imperial County Plan for 2008 8-hour Ozone Standard.** Because of Imperial County's "moderate" nonattainment status for 2008 federal 8-hour O_3 standards, ICAPCD was required to develop an 8-hour Attainment Plan for Ozone (ICAPCD 2017b).
- **2009 Imperial County Plan for PM10**. Imperial Valley is classified as nonattainment for federal and state PM_{10} standards. As a result, ICAPCD was required to develop a PM_{10} Attainment Plan. The final plan was adopted by ICAPCD on August 11, 2009 (ICAPCD 2009).
- **2013 Imperial County Plan for 2006 24-hour PM2.5 for Moderate Nonattainment Area.** U.S. EPA designated Imperial County as nonattainment for the 2006 24-hr $PM_{2.5}$ standard, effective December 14, 2009. The 2013 $PM_{2.5}$ SIP demonstrates attainment of the 2006 $PM_{2.5}$ NAAQS "but-for" transport of international emissions from Mexicali, Mexico. The City of Calexico, California shares a border with the City of Mexicali. Effective July 1, 2014, the City of Calexico was designated nonattainment, while the rest of the SSAB was designated attainment (ICAPCD 2014).

Imperial County Air Pollution Control District Rules and Regulations

ICAPCD has the authority to adopt and enforce regulations dealing with controls for specific types of sources, emissions or hazardous air pollutants, and New Source Review. The ICAPCD Rules and Regulations are part of the SIP and are separately enforceable by the EPA.

Rule 106 – Abatement. The Board may, after notice and a hearing, issue, or provide for the issuance by the Hearing Board, of an order for abatement whenever the District finds that any person is in violation of the rules and regulations limiting the discharge of air contaminants into the atmosphere.

Rule 107 – Land Use. The purpose of this rule is to provide ICAPCD the duty to review and advise the appropriate planning authorities within the District on all new construction or changes in land use which the Air Pollution Control Officer believes could become a source of air pollution problems.

Rule 201 – Permits Required. The construction, installation, modification, replacement, and operation of any equipment which may emit or control Air Contaminants require ICAPCD permits.

Rule 207 – New and Modified Stationary Source Review. Establishes preconstruction review requirements for new and modified stationary sources to ensure the operations of equipment does not interfere with attainment or maintenance of ambient air quality standards.

Rule 208 – Permit to Operate. The ICAPCD would inspect and evaluate the facility to ensure the facility has been constructed or installed and will operate to comply with the provisions of the Authority to Construct permit and comply with all applicable laws, rules, standards, and guidelines.

Rule 310 – Operational Development Fee. THE purpose of this rule is to provide ICAPCD with a sound method for mitigating the emissions produced from the operation of new commercial and residential development projects throughout the County of Imperial and incorporated cities. All project proponents have the option to either provide: off-site mitigation, pay the operational development fee, or do a combination of both. This rule will assist ICAPCD in attaining the state and federal ambient air quality standards for PM_{10} and O_3.

Rule 401 – Opacity of Emissions. Sets limits for release or discharge of emissions into the atmosphere, other than uncombined water vapor, that are dark or darker in shade as designated as No.1 on the Ringelmann Chart or obscure an observer's view to a degree equal to or greater than smoke does as compared to No.1 on the Ringelmann Chart, for a period or aggregated period of more than three minutes in any hour.

Rule 403 – General Limitations on the Discharge of Air Contaminants. Rule 403 sets forth limitations on emissions of pollutants, including particulate matter, from individual sources.

Rule 407 – Nuisance. Rule 407 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Regulation VIII – Fugitive Dust Rules. Regulation VIII sets forth rules regarding the control of fugitive dust, including fugitive dust from construction activities. The regulation requires implementation of fugitive dust control measures to reduce emissions from earthmoving, unpaved roads, handling of bulk materials, and control of track-out/carry-out dust from active construction sites. Best Available Control Measures to reduce fugitive dust during construction and earthmoving activities include but are not limited to:

- Phasing of work in order to minimize disturbed surface area
- Application of water or chemical stabilizers to disturbed soils
- Construction and maintenance of wind barriers

- Use of a track-out control device or wash down system at access points to paved roads.

Compliance with Regulation VIII is mandatory on all construction sites, regardless of size; however, compliance with Regulation VIII does not constitute mitigation under the reductions attributed to environmental impacts. In addition, compliance for a project includes: (1) the development of a dust control plan for the construction and operational phase; and (2) notification to the Air District is required 10 days prior to the commencement of any construction activity. Furthermore, any use of engine(s) and/or generator(s) of 50 horsepower or greater may require a permit through ICAPCD.

Southern California Association of Governments - 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy

The Southern California Association of Governments (SCAG) is the designated metropolitan planning organization for Los Angeles, Ventura, Orange, San Bernardino, Riverside, and Imperial Counties. CEQA requires that regional agencies like SCAG review projects and plans throughout its jurisdiction. SCAG, as the region's "Clearinghouse," collects information on projects of varying size and scope to provide a central point to monitor regional activity. SCAG has the responsibility of reviewing dozens of projects, plans, and programs every month. Projects and plans that are regionally significant must demonstrate to SCAG their consistency with a range of adopted regional plans and policies.

On April 7, 2016, SCAG adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The RTP/SCS includes a strong commitment to reduce emissions from transportation sources to comply with Senate Bill 375, improve public health, and meet the NAAQS as set forth by the federal CAA. The following SCAG goal is applicable to the project:

- Protect the environment and health of our residents by improving air quality and encouraging active transportation.

As a solar generation facility, the proposed project would improve air quality by reducing the use of fossil fuels in energy production. Construction of the proposed project would not exceed any ICAPCD thresholds or result in significant impacts to air quality. Although no significant air quality impact would occur during construction, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. PM_{10} emissions associated with construction of the project would be reduced through compliance with ICAPCD Regulation VIII. Operation of the proposed project would not exceed any ICAPCD thresholds or result in significant impacts to air quality. Therefore, the proposed project would be consistent with this SCAG goal.

Imperial County General Plan

The Imperial County General Plan serves as the overall guiding policy for the County. The Conservation and Open Space Element includes objectives for helping the County achieve the goal of improving and maintaining the quality of air in the region. Table 3.3-5 summarizes the project's consistency with the applicable air quality goal and objectives from the Conservation and Open Space Element. While this EIR analyzes the project's consistency with the General Plan pursuant to State CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

Table 3.3-5. Project Consistency with Applicable Plan Policies

Applicable Policies	Consistency Determination	Analysis
Conservation and Open Space Element		
Protection of Air Quality and Addressing Climate Change Goal 7: The County shall actively seek to improve the quality of air in the region.	Consistent	The proposed project would be required to comply with all applicable ICAPCD rules and requirements during construction and operation to reduce air emissions. Overall, the proposed project would improve air quality and reduce GHG emissions by reducing the amount of emissions that would be generated in association with electricity production from a fossil fuel burning facility. Therefore, the proposed Project is consistent with this goal.
Objective 7.1: Ensure that all project and facilities comply with current Federal, State and local requirements for attainment of air quality objectives.	Consistent	The proposed project would comply with current federal and State requirements for attainment for air quality objectives through conformance with all applicable ICAPCD rules and requirements to reduce fugitive dust and emissions. Further, the project would comply with the ICAPCD Air Quality CEQA Handbook's Mandatory Standard, Discretionary and Enhanced Air Quality Measures (Mitigation Measure AQ-2). Therefore, the proposed project is consistent with this objective.
Objective 7.2: Develop management strategies to mitigate fugitive dust. Cooperate with all federal and state agencies in the effort to attain air quality objectives.	Consistent	The Applicant would cooperate with all federal and State agencies in the effort to attain air quality objectives through compliance with the ICAPCD Air Quality CEQA Handbook's Mandatory Standard, Discretionary and Enhanced Air Quality Measures (Mitigation Measure AQ-2). Therefore, the proposed project is consistent with this objective.

Source: Imperial County General Plan, as amended

3.3.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to air quality, the methodology employed for the evaluation, an impact evaluation, and mitigation requirements, if necessary.

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to air quality are considered significant if any of the following occur:

- Conflict with or obstruct implementation of the applicable air quality plan
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for O3 precursors)
- Expose sensitive receptors to substantial pollutant concentrations

- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

Imperial County Air Pollution Control District

ICAPCD amended the Air Quality Handbook: Guidelines for the Implementation of CEQA on December 12, 2017. ICAPCD established significance thresholds based on the state CEQA thresholds. The handbook was used to determine the proper level of analysis for the project.

OPERATIONS

Air quality analyses should compare all operational emissions of a project, including motor vehicle, area source, and stationary or point sources to the thresholds in Table 3.3-6. Projects can be classified as either Tier 1 or Tier 2 projects, depending on the project's operational emissions. As shown in Table 3.3-6, Tier 1 projects are projects that emit less than 137 pounds per day of nitrogen oxide (NO_x) or reactive organic gases (ROGs); less than 150 pounds per day of PM_{10} or SO_x; or less than 550 pounds per day of CO or $PM_{2.5}$. Tier 1 projects are not required to develop a Comprehensive Air Quality Analysis Report or an EIR, and require the implementation of all feasible mitigation measures listed in Section 7.2 of the ICAPCD's *Air Quality Handbook*.

Alternatively, Tier 2 projects are projects that emit 137 pounds per day of NO_x or ROG or greater; 150 pounds per day of PM_{10} or SO_x or greater; or 550 pounds per day of CO or $PM_{2.5}$ or greater. Tier 2 projects are required to develop a Comprehensive Air Quality Analysis Report at a minimum, and are required to implement all standard mitigation measures as well as all feasible discretionary mitigation measures listed in Sections 7.2 and 7.3 of the ICAPCD's *Air Quality Handbook*.

Table 3.3-6. Imperial County Air Pollution Control District Significance Thresholds for Operation

Criteria Pollutant	Tier 1	Tier 2
NO_x and ROG	Less than 137 pounds per day	137 pounds per day and greater
PM_{10} and SO_x	Less than 150 pounds per day	150 pounds per day and greater
CO and $PM_{2.5}$	Less than 550 pounds per day	550 pounds per day and greater
Level of Significance	Less than Significant	Significant Impact

Source: ICAPCD 2017

CO – carbon monoxide; NO_x – nitrogen oxide; O_3 – ozone; Pb – lead; $PM_{2.5}$ – particulate matter less than 2.5 microns in diameter; PM_{10} - particulate matter less than 10 microns in diameter; ROG - reactive organic gas; S0x – sulfur oxide

CONSTRUCTION

For construction projects, the Air Quality Handbook indicates that the significance threshold for NO_x is 100 pounds per day and for ROG is 75 pounds per day. As discussed in the ICAPCD's handbook, the approach to evaluating construction emissions should be qualitative rather than quantitative. In any case, regardless of the size of the project, the standard mitigation measures for construction equipment and fugitive PM_{10} must be implemented at all construction sites. The implementation of discretionary mitigation measures, as listed in Section 7.1 of the ICAPCD's Air Quality Handbook, apply to those construction sites that are 5 acres or more for non-residential developments or 10 acres or more in size for residential developments. The mitigation measures found in Section 7.1

of the ICAPCD's handbook are intended as a guide of feasible mitigation measures and are not intended to be an all-inclusive comprehensive list of all mitigation measures. Table 3.3-7 presents the construction emission thresholds that are identified by ICAPCD.

Table 3.3-7. Imperial County Air Pollution Control District Significance Thresholds for Construction Activities

Pollutant	Threshold
PM_{10}	150 pounds per day
ROG	75 pounds per day
NO_X	100 pounds per day
CO	550 pounds per day

Source: ICAPCD 2017

CO – carbon monoxide; NO_x – nitrogen oxide; PM_{10} - particulate matter less than 10 microns in diameter; ROG - reactive organic gas

Diesel Toxic Risk Thresholds

There are inherent uncertainties in risk assessment with regard to the identification of compounds as causing cancer or other health effects in humans, the cancer potencies and reference exposure levels of compounds, and the exposure that individuals receive. It is common practice to use conservative (health protective) assumptions with respect to uncertain parameters. The uncertainties and conservative assumptions must be considered when evaluating the results of risk assessments.

There is debate as to the appropriate levels of risk assigned to diesel particulates. The EPA has not yet declared diesel particulates as a toxic air contaminant. Using the CARB threshold, a risk concentration of one in one million (1:1,000,000) per micrograms per cubic meter ($\mu g/m^3$) of continuous 70-year exposure is considered less than significant.

Methodology

The analysis criteria for air quality impacts are based on the approach and methods discussed in the ICAPCD's Air Quality Handbook. The proposed project would result in both short-term and long-term emissions of air pollutants associated with construction and operations of the proposed project.

Construction emissions would include exhaust from the operation of conventional construction equipment, on-road emissions from employee vehicle trips and haul truck trips, fugitive dust as a result of grading and vehicle travel on paved and unpaved surfaces.

Operational emissions would include four vehicle trips per day of full-time employees to commute to and from the project site, to control the site operation and equipment and perform limited maintenance of equipment.

The handbook establishes aggregate emission calculations for determining the potential significance of a project. In the event that the emissions exceed the established thresholds (Table 3.3-6 and Table 3.3-7), air dispersion modeling may be conducted to assess whether the project results in an exceedance of an air quality standard. Emissions of criteria air pollutants were estimated using existing

conditions information, project construction details, and project operations information, as well as a combination of emission factors from the following sources.

- California Emissions Estimator Model (CalEEMod), version 2016.3.2
- Emission estimates and default data from sources such as USEPA AP-42 emission factors, CARB vehicle emission models, and studies from California agencies such as the California Energy Commission (CEC)
- Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) provided by the various California air districts to account for local requirements and conditions.

An air quality technical report was prepared by Stantec (Appendix D of this EIR). This report was used in the evaluation of construction and operational air quality impacts. Associated emissions calculations and assumptions are included in Appendix D of this EIR.

The air quality impacts are mainly attributable to construction phases of the project, including site preparation, facility installation, and gen-tie and site restoration. Operational impacts include inspection and maintenance operations, which includes washing of the solar panels.

Impact Analysis – Solar Energy Facility and Gen-Tie Line

Impact 3.3-1 Would the project conflict with or obstruct implementation of the applicable air quality plan?

The air quality attainment plan (AQAP) for the SSAB, through the implementation of the AQMP (previously AQAP) and SIP for PM_{10}, sets forth a comprehensive program that will lead the SSAB into compliance with all federal and state air quality standards. The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans and/or population projections, meeting the land use designation set forth in the local General Plan, and comparing assumed emissions in the AQMP to proposed emissions.

The project must demonstrate compliance with all ICAPCD applicable rules and regulations, as well as local land use plans and population projections. As the project does not contain a residential component, the project would not result in an increase in the regional population. While the project would contribute to energy supply, which is one factor of population growth, the proposed project would not significantly increase employment or growth within the region. Moreover, development of the proposed project would increase the amount of renewable energy and help California meet its Renewable Portfolio Standard (RPS). As shown in Table 3.3-5, the project is consistent with the applicable air quality goal and objectives from the Conservation and Open Space Element of the General Plan. The proposed project would be required to comply with all applicable ICAPCD rules and requirements during construction and operation to reduce air emissions. Overall, the proposed project would improve air quality by reducing the amount of emissions that would be generated in association with electricity production from a fossil fuel burning facility.

Furthermore, the thresholds of significance, adopted by the air district (ICAPCD), determine compliance with the goals of the attainment plans in the region. As such, emissions below the ICAPCD regional mass daily emissions thresholds presented in Table 3.3-6 and Table 3.3-7 would not conflict

with or obstruct implementation of the applicable air quality plans. The following analysis is broken out by a discussion of potential impacts during construction of the project followed by a discussion of potential impacts during operation of the project.

Construction Emissions. Air emissions are generated during construction through activities. Emissions modeled include emissions associated with site preparation, grading, trenching, construction of roads, transmission lines, and installation of electrical infrastructure, substations and solar array modules. Diesel exhaust emissions are generated through the use of heavy equipment, such as dozers, loaders, scrapers, and vehicles, such as dump/haul trucks. During site clearing and grading, PM_{10} is released as a result of soil disturbance. Construction emissions vary from day-to-day depending on the number of workers, number, and types of active heavy-duty vehicles and equipment, level of activity, the prevailing meteorological conditions, and the length over which these activities occur.

The proposed project is anticipated to take approximately 6-9 months from the commencement of the construction process to complete. Construction of the proposed project would occur in multiple phases: (1) Site Preparation; (2) Facility Installation; and (3) Gen-Tie and Site Restoration. The construction emissions associated with each of these phases was based on the construction schedule. The construction emissions for each phase were calculated using the equipment list, the construction schedule, and EPA emission rates. Refer to Chapter 2, Project Description, for a discussion of construction equipment and construction workforce.

The total exhaust emissions generated within each of the construction phases are shown in Table 3.3-8. As shown in Table 3.3-8, the project's daily construction emissions would not exceed the ICAPCD thresholds for CO, ROG, NOx, and PM_{10}. Although no significant air quality impact would occur during construction, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. Implementation of Mitigation Measures AQ-1 and AQ-2 would provide additional reduction strategies to further improve air quality and ensure that this potential impact would remain less than significant.

Operational Emissions. The proposed project requires minimal operations and maintenance activities and would not require presence of fulltime employees. However, for estimation of operational emissions, it is conservatively assumed that for day-to-day inspection and minor maintenance, some employees would commute to the site. The annual operations are assumed to be as follows:

- For site inspection and minor repairs, up to 4 one-way worker trips per day would be generated
- Routine maintenance activities would include panel washing, which is expected to occur four times annually over a total of 20 days. Panel washing activities are estimated to require additional daily trips of 4 workers and 6 haul trucks for transport of water during each event. Panel washing was assumed to require the use of two pressure washers operating 8 hours/day, and 5 days/week. The default model generated trip lengths were used for workers commute and haul trucks.

As shown in Table 3.3-9, the project's operational emissions would not exceed the ICAPCD thresholds for CO, ROG, NOx, PM_{10} and $PM_{2.5}$. Although no significant air quality impact would occur during operation, the project applicant is required to submit a Dust Suppression Management Plan for both construction and operations to reduce fugitive dust emissions. Implementation of Mitigation Measures AQ-3, AQ-4, and AQ-5 would ensure that this potential impact would remain less than significant.

As described above, conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans and/or population projections and comparing assumed emissions in the AQMP to proposed emissions. Because the proposed project complies with local land use plans and population projections and would not exceed ICAPCD's regional mass daily emissions thresholds during construction and operations, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. This is considered a less than significant impact.

Table 3.3-8. Estimated Construction Emissions by Phase

Construction Phase Activity	Pollutant Emission (pounds per day)					
	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	SO_2
Site Preparation	4.10	~~39.6~~ 39.72	25.73	~~27.8~~ 63.87	7.9	0.06
Facility Installation	~~3.43.~~3.38	~~30.4~~ 30.38	25.03	~~27.6~~ 86.38	4.0	0.06
Gen-Tie, Site Restoration	~~2.0~~ 1.97	17.95	14.83	~~14.2~~ 43.36	2.2	0.03
Peak Daily Emission	4.10	~~39.6~~ 39.72	25.73	~~27.8~~ 86.38	7.9	0.06
ICAPCD Significance Thresholds	75	100	550	150	--	--
Exceed Threshold?	No	No	No	No	--	--

Source: Appendix D of this EIR
Notes:
-ICAPCD significance thresholds are based on maximum daily emissions.
-Emission were quantified using CalEEMod, version 2016.3.2 using "general light industry" land use category and modifying default values, where applicable.
-Model results and assumptions are provided in Appendix D of this EIR.
ICAPCD – Imperial County Air Pollution Control District; N/A – not applicable CO – carbon monoxide; NOx – nitrogen oxide; O3 – ozone; Pb – lead; PM2.5 – particulate matter less than 2.5 microns in diameter; PM10 - particulate matter less than 10 microns in diameter; ROG - reactive organic gas; S0x – sulfur dioxide

Table 3.3-9. Estimated Operational Emissions Summary

Operational Activities	Pollutant Emission (pounds per day)				
	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Panel Washing	0.14	~~1.68~~ 1.61	~~0.86~~ 0.84	~~2.14~~ 23.48	~~0.26~~ 2.38
Normal Maintenance	~~0.02~~ 0.03	0.02	0.24	~~0.63~~ 9.38	~~0.07~~ 0.94
Peak Daily Emission (Total Operational)	~~0.16~~ 0.17	~~1.70~~ 1.64	~~1.09~~ 1.08	~~2.77~~ 32.86	~~0.33~~ 3.32
ICAPCD Significance Thresholds	137	137	550	150	550
Exceed Threshold?	No	No	No	No	No

Source: Appendix D of this EIR

Notes:

-ICAPCD significance thresholds are based on maximum daily emissions.

-Emission were quantified using CalEEMod, version 2016.3.2 using "user defined industrial" category and modifying default values using project-specific data/assumptions, where available.

-The data for PM_{10} and $PM_{2.5}$ emissions, include the standard mitigation for fugitive dust that is required for all projects in Imperial County.

-Model results and assumptions are provided in Appendix D of this EIR.

ICAPCD – Imperial County Air Pollution Control District; N/A – not applicable CO – carbon monoxide; NOx – nitrogen oxide; O3 – ozone; Pb – lead; PM2.5 – particulate matter less than 2.5 microns in diameter; PM10 - particulate matter less than 10 microns in diameter; ROG - reactive organic gas

Mitigation Measure(s)

AQ-1 **Construction Equipment.** Construction equipment shall be equipped with an engine designation of EPA Tier 2 or better (Tier 2+). A list of the construction equipment, including all off-road equipment utilized at each of the projects by make, model, year, horsepower and expected/actual hours of use, and the associated EPA Tier shall be submitted to the County Planning and Development Services Department and ICAPCD prior to the issuance of a grading permit. The equipment list shall be submitted periodically to ICAPCD to perform a NOx analysis. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.

AQ-2 **Fugitive Dust Control.** Pursuant to ICAPCD, all construction sites, regardless of size, must comply with the requirements contained within Regulation VIII – Fugitive Dust Control Measures. Whereas these Regulation VIII measures are mandatory and are not considered project environmental mitigation measures, the ICAPCD CEQA Handbook's required additional standard and enhanced mitigation measures listed below shall be implemented prior to and during construction. ICAPCD will verify implementation and compliance with these measures as part of the grading permit review/approval process.

ICAPCD Standard Measures for Fugitive Dust (PM_{10}) Control

- All disturbed areas, including bulk material storage, which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material, such as vegetative ground cover.
- All on-site and offsite unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material.
- All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.
- Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line.
- The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants, and/or watering.

ICAPCD "Discretionary" Measures for Fugitive Dust (PM_{10}) Control

- Water exposed soil only in those areas where active grading and vehicle movement occurs with adequate frequency to control dust.
- Replace ground cover in disturbed areas as quickly as possible.
- Automatic sprinkler system installed on all soil piles.
- Vehicle speed for all construction vehicles shall not exceed 15 miles per hour on any unpaved surface at the construction site.
- Develop a trip reduction plan to achieve a 1.5 average vehicle ridership for construction employees.
- Implement a shuttle service to and from retail services and food establishments during lunch hours.

Standard Mitigation Measures for Construction Combustion Equipment

- Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.
- Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use.
- Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

Enhanced Mitigation Measures for Construction Equipment

To help provide a greater degree of reduction of PM emissions from construction combustion equipment, ICAPCD recommends the following enhanced measures.

- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways.
- Implement activity management (e.g., rescheduling activities to reduce short-term impacts).

AQ-3 **Dust Suppression.** The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. The project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, and Fire Department access/emergency entry/exit points as approved by Fire/Office of Emergency Services [OES] Department).

AQ-4 **Dust Suppression Management Plan.** Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

AQ-5 **Operational Dust Control Plan.** Prior to issuance of a Certificate of Occupancy, the applicant shall submit an operations dust control plan and obtain ICAPCD and ICPDS approval.

ICAPCD Rule 301 Operational Fees apply to any project applying for a building permit. At the time that building permits are submitted for the proposed project, ICAPCD shall review the project to determine if Rule 310 fees are applicable to the project.

Significance After Mitigation

Although the proposed project would not exceed ICAPCD's significance thresholds, Mitigation Measures AQ-1 through AQ-5 would provide additional reduction strategies to further improve air quality and reductions in criteria pollutants (O_3 precursors) and ensure that this potential impact would remain less than significant impact. The proposed project would not conflict with implementation of applicable air quality plans, and impacts would be less than significant impact.

Impact 3.3-2 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for O3 precursors)?

As shown in Table 3.3-2, the criteria pollutants for which the project area is in non-attainment under applicable air quality standards are O_3 and PM_{10}. The ICAPCD's application of thresholds of significance for criteria air pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. As discussed above in Impact 3.3-1, the unmitigated emissions of criteria pollutants from project construction and operation activities are below the ICAPCD thresholds of significance. Furthermore, implementation of Mitigation Measures AQ-1 and AQ-2 will ensure compliance with ICAPCD rules and regulations and applicable air quality plan control measures. Therefore, the project's potential to result in a cumulatively considerable net increase of any criteria pollutant is considered less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.3-3 Would the project expose sensitive receptors to substantial pollutant concentrations?

The project site is in a generally rural area and surrounded by relatively undisturbed desert lands. Agricultural fields are located to the west of the site. Sensitive receptors located within one mile of the project site consist of a few scattered rural homes, there are no sensitive receptors within 1,500 feet of the project site boundary. Sensitive receptors located within one mile of the project site consist of a few scattered rural homes, the nearest of which is located approximately 2,000 feet southwest of the project site boundary.

Operation of the proposed project would not result in long-term emission sources that would adversely affect nearby sensitive receptors. Short-term construction activities (over a period of approximately 6 to 9 months) could result in temporary increases in pollutant concentrations, as provided in Table 3.3-8. However, emissions of all criteria pollutants are below the ICAPCD thresholds and would not have any significant impact. During construction and operations activities, the proposed project would implement dust control measures (Mitigation Measure AQ-1), including an operational dust control plan (Mitigation Measure AQ-5), to ensure receptors in the project vicinity would not be impacted by the project's long-term dust emissions during operations. The project's emissions of toxic air pollutants would be minimal and would consist of DPM (diesel particulate matter) emissions during construction activities. Employees commuting to the site during project construction or operation would use gasoline-fueled vehicles. As there would be minimal and temporary emissions of DPM during project construction, and the nearest sensitive receptor is approximately 2,000 feet southwest of the project site, implementation of the project would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.3-4 Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

An odor impact depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies.

Among possible physical harms is inhalation of volatile organic compounds (VOC) that cause smell sensations in humans. These odors can affect human health in four primary ways:

- The VOCs can produce toxicological effects
- The odorant compounds can cause irritations in the eye, nose, and throat
- The VOCs can stimulate sensory nerves that can cause potentially harmful health effects
- The exposure to perceived unpleasant odors can stimulate negative cognitive and emotional responses based on previous experiences with such odors

Land uses commonly considered to be potential sources of odorous emissions include wastewater treatment plants, sanitary landfills, food processing facilities, chemical manufacturing plants, rendering plants, paint/coating operations, and concentrated agricultural feeding operations and dairies. The construction and operation of a solar farm is not an odor producer.

The nearest sensitive receptor is scattered rural homes approximately 2,000 feet southwest of the project site. Odors from construction equipment would not affect these sensitive receptors, as no odors could affect them at such a distance. Operational activities of the project, including panel washing and routine maintenance, do not have the potential to generate odorous emissions that could affect a substantial number of people. No impact would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No new transmission structures would be required to install the fiberoptic cable.

The installation of the fiberoptic cable would result in short-term construction emissions from the operation of construction equipment and vehicle travel on paved and unpaved surfaces. However, construction emissions are not anticipated to exceed ICAPCD thresholds because the installation of the fiberoptic cable would not require grading or the use of a substantial number of heavy construction equipment. Furthermore, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control

emissions of fugitive dust and combustion exhaust. The proposed fiber optic cable would result in a less than significant air quality impact.

3.3.4 Decommissioning/Restoration and Residual Impacts

Decommissioning/Restoration

If at the end of the PPA term, no contract extension is available for a power purchaser, no other buyer of the energy emerges, or there is no further funding of the project, the project will be decommissioned and dismantled. Similar to construction activities, decommissioning and restoration of the project site would generate air emissions. A summary of the daily construction emissions for the project is provided in Table 3.3-8. Solar equipment has a lifespan of approximately 20 to 25 years. The emissions from on- and off-road equipment during decommissioning are expected to be significantly lower than project construction emissions, as the overall activity would be anticipated to be lower than project construction activity. No significant air quality impacts are anticipated during decommissioning and restoration of the project site. However, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. Mitigation Measures AQ-1 through AQ-5 would provide additional reduction strategies to further improve air quality. Therefore, a less than significant impact is identified during decommissioning and site restoration of the project site.

Residual

The proposed project would not result in short-term significant air quality impacts during construction. Implementation of Mitigation Measures AQ-1 and AQ-2 would provide additional reduction strategies to reduce ROG, NOx, PM_{10}, and CO emissions during construction. Operation of the project, subject to the approval of a CUP, would be consistent with applicable federal, state, regional, and local plans and policies. Implementation of Mitigation Measures AQ-3, AQ-4, and AQ-5 would ensure that fugitive dust emissions would be reduced during construction and operations. The project would not result in any residual operational significant and unavoidable impacts with regards to air quality.

3.4 Biological Resources

This section identifies the biological resources that may be impacted by the proposed project. The following identifies the existing biological resources on the project site, analyzes potential impacts of the proposed project, and recommends mitigation measures to avoid or reduce potential impacts of the proposed project.

The existing biological resources information for this section is summarized from the following technical reports:

- *Biological Resources Technical Report* (BRTR) prepared by Stantec *(*Appendix E of this EIR)
- *Flat-Tailed Horned Lizard Survey* prepared by Barrett's Biological Surveys (Appendix F of this EIR)
- *Preliminary Jurisdictional Waters/Wetlands Delineation Report* prepared by Stantec (Appendix G of this EIR)

3.4.1 Existing Conditions

The 122.5-acre Project footprint includes the solar field, substation, control room, gen-tie line, proposed groundwater well, main access road, emergency access roads, drainage, security fencing, parking, retention basins, and temporary staging area. The project site is located within the Imperial Valley approximately 2 miles northeast of Niland, 5 miles east of the Salton Sea, and 1.5 miles west of the active Chocolate Mountain Aerial Gunnery Range (Figure 3.4-1). The biological study area (BSA) includes the Project footprint plus a 300-foot buffer (Figure 3.4-1).

The BSA is situated within the Sonoran Desert region of southern California, which has an average annual temperature ranging from 42 degrees Fahrenheit in December to 107 degrees Fahrenheit in July and an average annual precipitation of 2.87 inches (US Climate Data 2018). The BSA slopes gently from northeast to southwest, with elevations ranging from approximately 20 feet above mean sea level (MSL) to approximately 30 feet below MSL. It is bordered largely by undeveloped land to the north, east, and south, with existing orchard occurring to the west and northwest. The unpaved Gas Line Road is roughly parallel to the eastern boundary of the BSA. The East Highline Canal, an IID water delivery conveyance passes through the extreme southwestern corner of the BSA (Figure 2-2).

According to the BRTR, four soil types were mapped within the BSA including Niland gravelly sand; Niland-Imperial complex, wet; Vint and Indio very fine sandy loams, wet and NOTCOM (No Digital Data Available) (United States Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS] 2020a). The project site falls within the portion of the BSA for which no digital data is available. However, a 1903 soil survey, identifies the project site as occurring on Imperial gravelly loam. Of the above soils, only "Niland gravelly sand" appears on the NRCS hydric soils list (USDA NRCS 2020b).

Methodology

General Surveys

Prior to conducting field surveys, a literature search was conducted to identify special-status plant and animal species with potential to occur within 10 miles of the BSA. Sources reviewed included:

- CDFW California Natural Diversity Database (CDFW 2019a)

- State and Federally Listed Endangered and Threatened Animals of California (CDFW 2018a)
- Special Animals List (CDFW 2018b)
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2018c)
- Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society [CNPS] 2019)
- California Sensitive Natural Communities (CDFW 2018d)
- Consortium of California Herbaria (CCH; 2020)

On January 30, 2019, Stantec conducted a habitat assessment and reconnaissance-level survey by vehicle and on foot with the primary goal of identifying habitat that could be capable of supporting special-status species and to document the presence/absence of special-status biological resources. During that site visit, biologists recorded preliminary vegetation type boundaries over recent aerial photograph base maps using the ESRIi® Collector for ArcGIS app on an Apple® iPad® coupled with a Bad Elf® GNSS Surveyor sub-meter external global positioning system unit. Mapping was further refined in the office using ArcGIS (version 10.4). Vegetation descriptions and names are based on Sawyer et al. (2009) and have been defined at least to the alliance level. Additional details regarding methodology are available in the BRTR for the Project (Appendix E of this EIR).

Habitat Assessments

SPECIAL-STATUS PLANTS

Each of the special-status plants species, subspecies, or variety identified from the literature search, including those listed as threatened or endangered under the Federal ESA or CESA, proposed for such listing, or with a California Rare Plant Rank (CRPR) of 1-4, was assessed for their potential to occur within the BSA based on the following criteria:

- **Present:** Species was observed within the BSA during recent botanical surveys or one or more populations have been acknowledged by CDFW, USFWS, or local experts.
- **High:** A documented recent record (within 10 years) exists of the species within the BSA or immediate vicinity (approximately 5 miles), the environmental conditions (including soil type) associated with presence of the species occur within the BSA, and the BSA is located within the known current distribution of the species.
- **Moderate:** A documented recent record (within 10 years) exists of the species within the BSA or immediate vicinity (approximately 5 miles), the environmental conditions associated with presence of the species are marginal and/or limited within the BSA, and the BSA is located within the known current distribution of the species.
- **Low:** A historical record (over 10 years) exists of the species within the BSA or general vicinity (approximately 10 miles) and the environmental conditions (including soil type) associated with presence of the species are marginal and/or limited within the BSA.
- **Not Likely to Occur:** The environmental conditions associated with presence of the species do not occur within the BSA.

SPECIAL-STATUS WILDLIFE

Each of the special-status wildlife species or subspecies identified from the literature search, including those listed as threatened or endangered under the Federal ESA or CESA, proposed for such listing, designated as Species of Special Concern or Fully Protected, and other species that have been identified by the USFWS, CDFW, or local jurisdictions as unique or rare, was assessed for their potential to occur within the BSA based on the following criteria:

- **Present:** Species (or sign) were observed in the BSA or in the same watershed (aquatic species only) during the most recent surveys, or a population has been acknowledged by CDFW, USFWS, or local experts.
- **High:** Suitable habitat (including soils) for the species occurs on site and a known occurrence has been reported within the BSA or adjacent areas (within 5 miles of the BSA) within the past 20 years; however, these species were not detected during the most recent surveys.
- **Moderate:** Suitable habitat (including soils) for the species occurs on site and a known regional record occurs within the database search, but not within 5 miles of the BSA or within the past 20 years; or a known occurrence occurs within 5 miles of the BSA and within the past 20 years and marginal or limited amounts of suitable habitat occur on site; or the species' range includes the BSA and suitable habitat exists within the BSA.
- **Low:** Limited suitable habitat for the species occurs on site, no known occurrences were produced from the database search, and the species' range includes the BSA.
- **Not Likely to Occur:** The environmental conditions associated with presence of the species do not occur within the BSA.

Focused Surveys for Flat-Tailed Horned Lizard

Per guidance provided by Magdalena Rodriguez, CDFW Senior Environmental Scientist (Specialist) from the Ontario, California field office, focused surveys for flat-tailed horned lizard were conducted for the entire 640-acre parcel on August 31, 2018. Surveys were conducted by Barrett's Biological Surveys in accordance with the survey protocol provided in the Flat-tailed Horned Lizard Rangewide Management Strategy (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003). Additional details regarding methodology are available in the BRTR for the Project (Appendix E of this EIR).

Jurisdictional Delineation

Stantec conducted a formal jurisdictional delineation on April 12, 2018. During that survey, the BSA was evaluated for potential wetlands and/or waters subject to federal and/or state jurisdiction pursuant to Sections 404 and 401 of the Clean Water Act. The jurisdictional assessment also included an investigation of areas that could be jurisdictional pursuant to Section 1600 et seq. of the California FGC. Prior to conducting the jurisdictional delineation, Stantec reviewed current and historic aerial imagery, topographic maps, soil maps, local and state hydric soils lists, and the National Wetlands Inventory (USFWS 2006) to evaluate the potential active channels and wetland features that occur within the BSA. During the field assessment, hydrologic features were mapped using the same data collection equipment described above for vegetation mapping. Field data were further refined in the office using a Geographic Information System (GIS) and total jurisdictional area for each regulatory jurisdiction calculated. Additional details regarding methodology are available in the Preliminary Jurisdictional Waters/Wetlands Delineation Report for the Project (Appendix G of this EIR).

Vegetation Communities and Land Cover Types

The following vegetation communities and land cover types were mapped within the BSA during field surveys conducted for the Project: creosote bush – white bursage scrub, arrow weed thickets, blue palo verde – ironwood woodland, tamarisk thickets, agriculture, disturbed, and developed land. These vegetation communities and land cover types within the BSA are depicted on Figure 3.4-1 and summarized in Table 3.4-1. A brief description of each vegetation community and land cover type is provided below the table.

Table 3.4-1. Vegetation Communities or Land Cover Types within the Biological Study Area

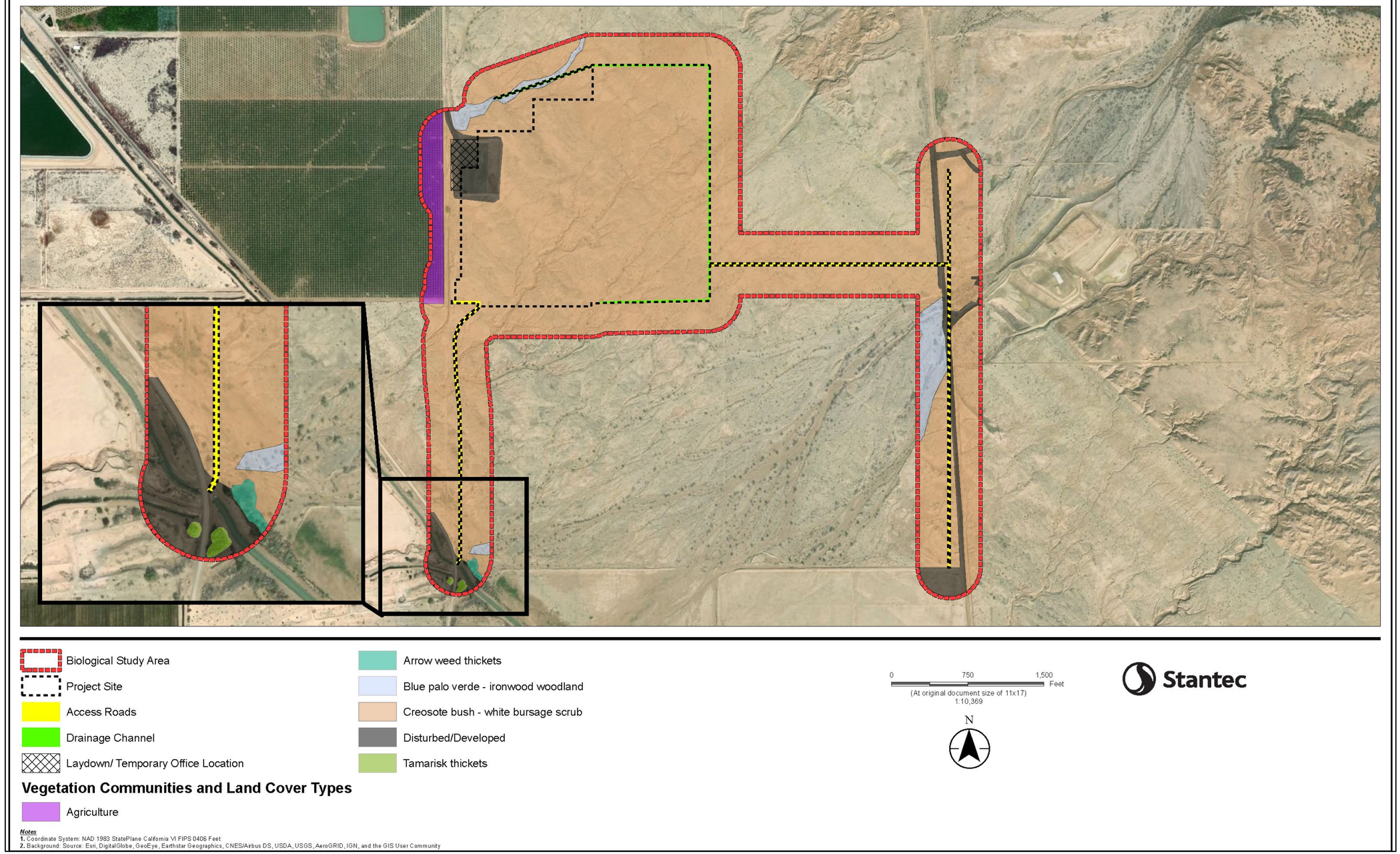
Vegetation Community or Land Cover Type	Acres within BSA
Creosote Bush – White Bursage Scrub	279.83
Arrow Weed Thickets	0.41
Blue Palo Verde – Ironwood Woodland	9.87
Tamarisk Thickets	0.29
Agriculture	7.92
Disturbed/Developed	21.80
Total	**320.12**

Source: Appendix E of this EIR

Creosote Bush – White Bursage Scrub

Creosote bush (*Larrea tridentata*) - white bursage (*Ambrosia dumosa*) scrub is the primary vegetation community throughout the BSA. Other shrub species present within this community include a number of saltbush species (*Atriplex* spp.) and desert thorn (*Lycium brevipes*). The sparse understory consists of native herbaceous species, including desert dandelion (*Malacothrix glabrata*) and desert plantain (*Plantago ovata*), and non-native grasses, primarily bromes (*Bromus* spp.) and Mediterranean grass (*Schismus barbatus*).

Figure 3.4-1. Vegetation Communities and Land Cover Types in the Biological Study Area



Source: Appendix E of this EIR

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Arrow Weed Thickets

Arrow weed (*Pluchea sericea*) thickets are the dominant vegetation along the small section of the East Highline Canal in the southwestern corner of the BSA. Other species that are less common in this vegetation community include cattails (*Typha* spp.), common reed (*Phragmites australis*), and saltcedar (*Tamarix ramosissima*).

Blue Palo Verde – Ironwood Woodland

This vegetation community occurs along the margins of some of the larger drainage features within the BSA, particularly in the southeast portion of the BSA. This vegetation community is dominated by ironwood (*Olneya tesota*) trees, though a few blue palo verde (*Parkinsonia florida*) and honey mesquite (*Prosopis glandulosa* var. *torreyana*) trees are interspersed throughout the community. The understory consists of white bursage, creosote bush, and brome grasses.

Tamarisk Thickets

This vegetation community is comprised of a monoculture of mature tamarisk trees up to approximately 40 feet tall with no appreciable understory. It occurs along the small section of the East Highline Canal in the southwestern corner of the BSA.

Agriculture

This land cover type was used to map areas of active agriculture. Within the BSA, areas mapped as Agriculture were limited to citrus farms located within and adjacent to the northwest corner of the BSA.

Disturbed/Developed

This land cover type was used to map portions of the BSA that are developed, primarily unpaved roadways. Where vegetated, these areas are generally composed of scarce occurrences of native and non-native herbaceous species common to the vegetation communities through which they pass.

Sensitive Natural Communities

Sensitive natural communities are defined by CDFW as, "…communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects." All vegetation within the state is ranked with an "S" rank, however only those that are of special concern (S1-S3 rank) are generally evaluated under CEQA.

Arrow weed thickets are listed with a rank of S3 and approximately 0.41 acre of this habitat type occurs within the BSA (Table 3.4-1).

Designated Critical Habitat

Based on the literature review conducted prior to field surveys, federally designated critical habitat that is nearest to the BSA is for the federally and state threatened desert tortoise (*Gopherus agassizii*), which occurs approximately 4 miles northeast of the BSA. Marginally suitable habitat for this species was present within and adjacent to the BSA.

Plant Species

Plants observed during the January 2019 reconnaissance-level survey were recorded to the taxonomic level feasible at the time of the survey given the plant's phenology; however, a focused, floristic-level survey was not conducted. The survey resulted in the documentation of 38 species of native and non-native plants within the BSA. A complete list of the plant species observed within the BSA is provided in the BRTR (Appendix E of this EIR).

Special-Status Plant Species

No special-status plant species were observed within the BSA during field surveys conducted in April and August 2018 and January 2019. A complete list of the special-status plant species with potential to occur in the vicinity of the project site is provided in the BRTR (Appendix E of this EIR). Table 3.4-2 identifies the special-status plant species that have a high to moderate potential to occur within the BSA.

Table 3.4-2. Known and Potential Occurrences of Special-Status Plant Species within the Biological Study Area

Species		Status	Habitat and Distribution	Blooming Period	Potential to Occur
Scientific Name	Common Name				
Astragalus insularis var. *harwoodii*	Harwood's milkvetch	2B.2	Sandy or gravelly. Desert dunes, Mojavean desert scrub. <500 m.	January - May	**High.** Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is from 2005, approximately 3 miles to the northwest.
Astragalus sabulonum	gravel milk-vetch	2B.2	Usually sandy, sometimes gravelly. Flats, washes, and roadsides. Desert dunes, Mojavean desert scrub, Sonoran Desert scrub. 60 to 885 m.	February - June	**Moderate.** Suitable habitat occurs within the BSA and the nearest occurrence to the BSA is less than 1 mile to the southwest, although that occurrence is from 1906.
Cylindropuntia munzii	Munz's cholla	1B.3	Sonoran Desert scrub, (sandy or gravelly). 150-600 m.	May	**Moderate.** Suitable habitat occurs within the BSA. The nearest occurrences to the BSA are approximately 6 miles to the east and 6 miles to the northeast.

Source: Appendix E of this EIR

Status Codes – California Rare Plant Rank designation: 1B = Plants rare, threatened, or endangered in California and elsewhere; 2B = Plants rare, threatened, or endangered in California but more common elsewhere; .2 = Fairly threatened in California (20-80% occurrences threatened / moderate degree/immediacy of threat); .3 = Not very threatened in California (less than 20% of occurrences threatened / low degree/immediacy of threats or no current threats known)

Wildlife Species

Conditions in the BSA provide microhabitats suitable for a variety of terrestrial insects and other invertebrates. As in all ecological systems, invertebrates in the BSA play a crucial role in a number of biological processes, including serving as primary or secondary food sources for bird, reptilian, and mammalian predators and pollination vectors, and providing pest control, waste removal, and nutrient cycling. The hand raked and visually inspected areas of the BSA included a wide variety of common native and non-native invertebrates further detailed in the BRTR (Appendix E of this EIR).

Although the ephemeral washes within the BSA do not support fish, the East Highline Canal, which traverses the extreme southwestern corner of the BSA, is known to support fish species including channel catfish (*Ictalurus punctatus*), bass (*Micropterus* sp.), and sunfish (*Lepomis* sp.).

Amphibians all require aquatic habitat for all or part of their life cycle, which may only be present within the BSA (except for the East Highline Canal) for a short period time during and immediately after substantial rain events. Therefore, amphibians are not expected to occur throughout the vast majority of the BSA. Common species known to occur in the region associated with more permanent sources of water provided by irrigation infrastructure include the Rio Grande leopard frog (*Lithobates berlandieri*), American bullfrog (*L. catesbeianus*), and Great Plains toad (*Anaxyrus cognatus*).

No reptile species were observed in the BSA at the time of the reconnaissance survey. Although these species were not detected, suitable habitat for a number of common reptiles was observed within the BSA, including sidewinder (*Crotalus cerastes*), Sonoran gopher snake (*Pituophis catenifer affinis*), western whiptail (*Aspidoscelis tigris*), desert iguana (*Dipsosaurus dorsalis*), and zebra-tailed lizard (*Callisaurus draconoides*).

The most common bird species observed was sagebrush sparrow (*Artemisiospiza nevadensis*), although mourning dove (*Zenaida macroura*) and flyovers by turkey vulture (*Cathartes aura*) and American kestrel (*Falco sparverius)* were also noted. Suitable habitat for a number of common birds known to occur in the region were observed at the time of the survey, including greater roadrunner (*Geococcyx californianus*), ladder-backed woodpecker (*Dryobates scalaris*), Gambel's quail (*Callipepla gambelii*), and phainopepla (*Phainopepla nitens*), although these species were not detected in the BSA.

Signs of mammal species (tracks, scat, etc.) were detected, but no individuals were observed during the January 2019 reconnaissance survey. A number of common mammals are expected to occur within the BSA given the habitat conditions and species that are known to occur in the region. These include round-tailed ground squirrel (*Xerospermophilus tereticaudus*), desert cottontail (*Sylvilagus audubonii*), kangaroo rats (*Dipodomys* spp.), coyote (*Canis latrans*), kit fox (*Vulpes macrotis),* and raccoon (*Procyon lotor*).

Special-Status Wildlife Species

No special-status wildlife species or their diagnostic sign (i.e., scat, tracks, whitewash, pellets or burrows) were observed within or immediately adjacent to the BSA during field surveys conducted in April and August 2018 or January 2019. A complete list of the special-status wildlife species with potential to occur in the vicinity of the project site is provided in the BRTR (Appendix E of this EIR). Table 3.4-3 identifies the special-status wildlife species that have a high to moderate potential to occur within the BSA.

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Table 3.4-3. Known and Potential Occurrences of Special-Status Wildlife Species within the Biological Study Area

Taxa		Status	Habitat Type	Comments	Occurrence Potential
Scientific Name	Common Name				
Amphibians					
Incilius alvarius	Sonoran Desert toad	SSC	Inhabits grasslands, arid desert low lands, mountain canyons w ith oaks and sycamores, and pinyon-oak-juniper mountain forests. Found near w ashes, river bottoms, springs, reservoirs, canals, irrigation ditches, stock ponds, streams, temporary pools, and sometimes aw ay from w ater sources.	Suitable habitat occurs w ithin the East Highline Canal in the extreme southw est corner of the BSA. The nearest recorded occurrence to the BSA is less than 1 mile to the southw est; how ever, this record is from 1916.	Moderate (in IID canal only)
Lithobates yavapaiensis	low land leopard frog	SSC	Found in streams, river side channels, springs, ponds, stock ponds in desert scrub, grassland, w oodland, and pinyon juniper habitats. Has been observed in canals, roadside ditches, and ponds in the Imperial Valley during the first quarter of this century, but the context of its occurrence in those areas is not w ell understood because that era w as a period of extensive habitat alteration. Low land leopard frogs may have simply been transitory in those areas.	Suitable habitat occurs w ithin the East Highline Canal in the extreme southw est corner of the BSA. The nearest recorded occurrence to the BSA is approximately 1.5 miles to the southw est; how ever, this record is from 1940.	Moderate (in IID canal only)
Scaphiopus couchii	Couch's spadefoot	SSC	Desert and arid regions of grassland, prairie, mesquite, creosote bush, thorn forest, and sandy w ashes. Temporary desert rain pools that last at least 7 days, w ith w ater temps >15°C and w ith subterranean refuge sites close by. An insect food base, especially termites, must be available.	Moderately suitable dispersal habitat occurs w ithin the BSA, but formation of temporary desert pools for breeding and gestation w ould occur infrequently. The nearest recorded occurrence to the BSA is approximately 3 miles to the w est.	Moderate
Reptiles					
Gopherus agassizii	desert tortoise	FT, ST	A desert species that needs firm ground in order to dig burrow s, or rocks to shelter among. In California, it is found in arid sandy or gravelly locations along riverbanks, w ashes, sandy dunes, alluvial fans, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides.	Marginally suitable habitat occurs w ithin the BSA. The nearest recorded occurrence to the BSA is approximately 4.3 miles to the northeast.	Moderate

Table 3.4-3. Known and Potential Occurrences of Special-Status Wildlife Species within the Biological Study Area

Taxa		Status	Habitat Type	Comments	Occurrence Potential
Scientific Name	Common Name				
Birds					
Athene cunicularia	burrowing owl	SSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is less than 1 mile to the west.	High
Charadrius montanus	mountain plover (wintering)	SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	No suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 1.4 miles to the south.	Moderate (as a transient)
Falco columbarius	merlin (wintering)	WL	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches. Clumps of trees or windbreaks are required for roosting in open country.	Suitable foraging habitat occurs within the BSA, but no roosting habitat is present. The nearest recorded occurrence to the BSA is approximately 2 miles to the south.	Moderate (foraging only)
Lanius ludovicianus	loggerhead shrike (nesting)	SSC	Loggerhead shrikes inhabit open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. They frequent agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses, and cemeteries. Often seen along mowed roadsides with access to fence lines and utility poles.	Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 7 miles to the southeast.	Moderate
Polioptila melanura	black-tailed gnatcatcher	WL	Live year-round in semiarid and desert thorn scrub at elevations up to 7,000 feet, often among creosote bush, salt bush, mesquite, palo verde, ocotillo, and spiny hackberry, as well as cacti such as saguaro, prickly pear, cholla, and barrel cactus. Along the lower Colorado River they may use willows as well as the invasive species tamarisk (salt cedar). They are well adapted to dry habitats and tend to be most common in areas with less than 8 inches of annual rainfall. They often live far away from streams and other bodies of water.	Marginally suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 6 miles to the southwest.	Moderate

Table 3.4-3. Known and Potential Occurrences of Special-Status Wildlife Species within the Biological Study Area

Taxa		Status	Habitat Type	Comments	Occurrence Potential
Scientific Name	Common Name				
Setophaga petechia	yellow warbler (nesting)	SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in the Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets and in other riparian plants, including cottonwoods, sycamores, ash, and alders.	No suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 3 miles to the southwest.	Moderate (as a transient)
Toxostoma crissale	Crissal thrasher	SSC	Found in dense, low scrubby vegetation, such as desert and foothill scrub and riparian brush.	Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 6 miles to the southwest.	Moderate
Toxostoma lecontei	Le Conte's thrasher	SSC	Desert scrub, mesquite, tall riparian brush and, locally, chaparral.	Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 9 miles to the southwest.	Moderate
Mammals					
Eumops perotis californicus	western mastiff bat	SSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	Suitable foraging habitat occurs within the BSA, but no roosting habitat is present. The nearest recorded occurrence to the BSA is less than 1 mile to the northeast.	High (foraging only)
Nyctinomops femorosaccus	pocketed free-tailed bat	SSC	Variety of arid areas in southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, and rocky areas with high cliffs.	Marginally suitable foraging habitat occurs within the BSA, but no roosting habitat is present. The nearest recorded occurrence to the BSA is less than 1 mile to the northeast.	High (foraging only)

Table 3.4-3. Known and Potential Occurrences of Special-Status Wildlife Species within the Biological Study Area

Taxa		Status	Habitat Type	Comments	Occurrence Potential
Scientific Name	Common Name				
Taxidea taxus	American badger	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 6 miles to the southwest.	Moderate

Source: Appendix E of this EIR
Federal Rankings: FE = Federally Endangered; FT = Federally Threatened
State Rankings: FP = Fully Protected; SE = State Endangered; ST = State Threatened; SSC = Species of Special Concern; WL = CDFW Watch List

Jurisdictional Waters

Two types of jurisdictional features were documented within the BSA: potential USACE non-wetland waters of the United States (19.15 acres) and CDFW state waters (25.83 acres). The BSA is bisected from northeast to southwest by numerous braided ephemeral drainage channels that contain surface water only during heavy storm events, draining the mountains to the northeast. These drainages ultimately flow into the Salton Sea, which is considered a Traditionally Navigable Water. As such, these drainage features would likely be considered federally and state jurisdictional. The extent of potential jurisdictional features within the BSA is depicted on Figure 3.4-2.

Wildlife Corridors and Habitat Connectivity

Linkages and corridors facilitate regional animal movement and are generally centered in or around waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Drainages generally serve as movement corridors because they provide fresh water and wildlife can move easily through these areas. Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals.

The BSA is located at the edge of a vast area of generally undeveloped open space that facilitates unimpeded wildlife movement and provides “live-in habitat” for a variety of species. Due to the lack of significant development to the north, northeast, and southeast of the BSA, wildlife movement is generally unconstrained in these directions. Lands to the west, southwest, and south are more developed, generally with agriculture to the west and southwest separating the BSA from the Salton Sea and a solar power generating facility to the south. In addition, SR 111 runs to the southwest of the BSA and likely serves as some level of barrier to wildlife movement. These areas contain few structures that would significantly impact wildlife movement.

Within the BSA, the lack of structures or other significant development and the presence of relatively intact habitat and features such as desert washes and unpaved roads all facilitate wildlife passage. However, the BSA does not occur within any known wildlife movement corridor or habitat linkage (Penrod et al. 2001).

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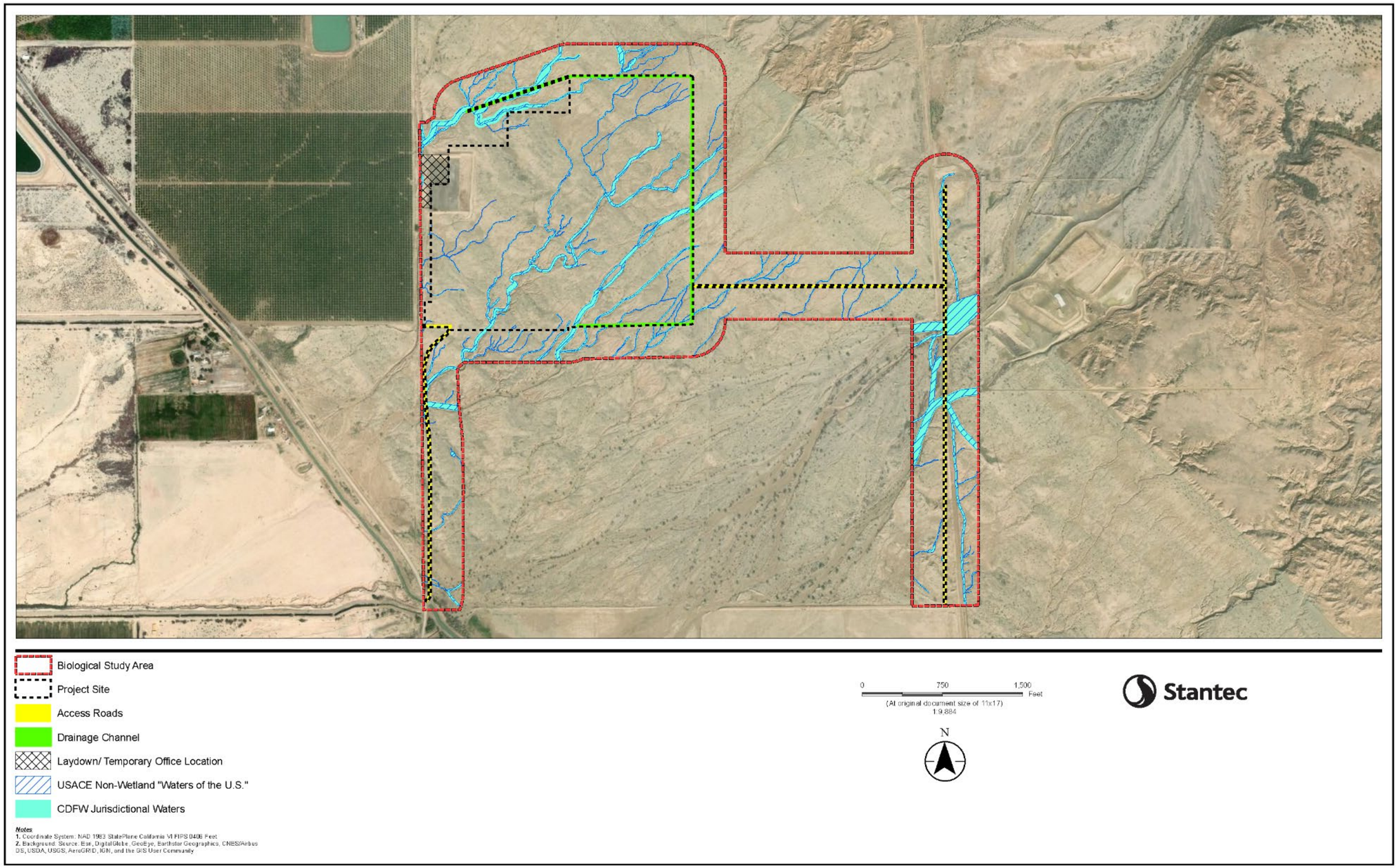
Figure 3.4-2. Potentially Jurisdictional Waters



Source: Appendix E of this EIR

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3.4.2 Regulatory Setting

This section identifies and summarizes federal, state, and local laws, policies, and regulations that are applicable to the project.

Federal

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) requires all Federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and utilize public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA with other planning requirements and prepare appropriate NEPA documents to facilitate better environmental decision making. NEPA requires Federal agencies to review and comment on Federal agency environmental plans/documents when the agency has jurisdiction by law or special expertise with respect to any environmental impacts involved (42 USC 4321- 4327) (40 CFR 1500-1508).

Bald and Golden Eagle Protection Act of 1940

The Bald Eagle Protection Act of 1940 protects bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. 'Take' is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." 'Disturb' is defined as "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 *Federal Register* [FR] 31132; 50 CFR 22.3). 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 Endangered Species Act

The Federal ESA protects federally listed threatened and endangered species and their habitats from unlawful take and ensures that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Under the ESA, "take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. USFWS regulations define harm to mean "an act which actually kills or injures wildlife" (50 CFR 17.3).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA. The prohibition applies to birds included in the respective international conventions between the U.S. and Great Britain, the U.S. and Mexico, the U.S. and Japan, and the U.S. and Russia. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA.

Section 404 Permit (Clean Water Act)

The Clean Water Act establishes a program to regulate the discharge of dredge and fill material into waters of the U.S., including wetlands. Activities regulated under this program include fills for development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and airports), and conversion of wetlands to uplands for farming and forestry. Either an individual 404b permit or authorization to use an existing USACE Nationwide Permit will need to be obtained if any portion of the construction requires fill into a river, stream, or stream bed that has been determined to be a jurisdictional waterway.

Farmland Protection Policy Act

The Farmland Protection Policy Act is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It also stipulates that federal programs be compatible with state, local, and private efforts to protect farmland. The USDA NRCS is charged with oversight of the Farmland Protection Policy Act.

State

California Endangered Species Act

Provisions of CESA protect state-listed threatened and endangered species. CDFW regulates activities that may result in "take" of individuals ("take" means "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under California FGC. Additionally, California FGC contains lists of vertebrate species designated as "fully protected" (California FGC §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed.

In addition to state-listed species, CDFW has also produced a list of Species of Special Concern to serve as a "watch list." Species on this list are of limited distribution or the extent of their habitats has been reduced substantially such that threats to their populations may be imminent. Species of Special Concern may receive special attention during environmental review, but they do not have statutory protection.

Birds of prey are protected in California under California FGC. Section 3503.5 states it is "unlawful to take, possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment.

California Fish and Game Code Section1600 (as amended)

California Fish and Wildlife Code Section 1600 regulates activities that substantially divert or obstruct the natural flow of any river, stream, or lake or use materials from a streambed. This can include riparian habitat associated with watercourses.

California Fish and Game Codes 3503, 3503.5, and 3513

Under Sections 3503, 3503.5, and 3513 of the California FGC, activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory nongame bird as designated by 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 FGC Section 3800 are prohibited. Additionally, the state further protects certain species of fish, mammals, amphibians and reptiles, birds, and mammals through CDFW's Fully Protected Animals which prohibits any take or possession of classified species.

Native Plant Protection Act (California Fish and Game Code Sections 1900-1913)

California's Native Plant Protection Act prohibits the taking, possessing, or sale within the state of any plant listed by CDFW as rare, threatened, or endangered. This allows CDFW to salvage listed plant species that would otherwise be destroyed.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, all projects proposing to discharge waste that could affect waters of the State must file a waste discharge report with the appropriate regional board. The project falls under the jurisdiction of the Colorado River RWQCB.

California Environmental Quality Act

Title 14 CCR 15380 requires the identification of endangered, rare, or threatened species or subspecies of animals or plants that may be impacted by a project. If any such species are found, appropriate measures should be identified to avoid, minimize, or mitigate the potential effects of projects.

California Land Conservation Act

The Williamson Act (California Land Conservation Act, California Government Code, Section 51200 et eq.) is a statewide mechanism for the preservation of agricultural land and open space land. The Act provides a comprehensive method for local governments to protect farmland and open space by allowing lands in agricultural use to be placed under contract (agricultural preserve) between a local government and a land owner.

Local

Imperial County General Plan

The Conservation and Open Space Element of the Imperial County General Plan provides detailed plans and measures for the preservation and management of biological and cultural resources, soils, minerals, energy, regional aesthetics, air quality, and open space. The purpose of this element is to recognize that natural resources must be maintained for their ecological value for the direct benefit to the public and to protect open space for the preservation of natural resources, the managed production of resources, outdoor recreation, and for public health and safety. In addition, the purpose of this element is to promote the protection, maintenance, and use of the County's natural resources with particular emphasis on scarce resources, and to prevent wasteful exploitation, destruction, and neglect of the state's natural resources. Table 3.4-4 analyzes the consistency of the project with specific policies contained in the Imperial County General Plan associated with biological resources.

Table 3.4-4. Project Consistency with General Plan Goals and Policies

General Plan Policies	Consistency with General Plan	Analysis
Conservation and Open Space Element - *Open Space and Recreation Conservation* **Policy No. 2 -** The County shall participate in conducting detailed investigations into the significance, location, extent, and condition of natural resources in the County. **Program:** Notify any agency responsible for protecting plant and wildlife before approving a project which would impact a rare, sensitive, or unique plant or wildlife habitat.	Consistent	A biological assessment has been conducted at the project site to evaluate the proposed project's potential impacts on biological resources. No sensitive resources, including burrowing owl (California species of special concern) and flat-tailed horned lizard (BLM sensitive species) were identified within the BSA. Applicable agencies responsible for protecting plants and wildlife will be notified of the proposed project and provided an opportunity to comment on this EIR prior to the County's consideration of any approvals for the project. As described in Chapter 2, Project Description, implementation of the project would require the approval of CUPs, General Plan Amendment, Zone Change, and Variance by the County to allow for the construction and operation of the project.
Conservation of Environmental Resources for Future Generations **Goal 1 -** Environmental resources shall be conserved for future generations by minimizing environmental impacts in all land use decisions and educating the public on their value. **Objective 1.6 -** Promote the conservation of ecological sites and preservation of cultural resource sites through scientific investigation and public education.	Consistent	A biological assessment has been conducted at the project site to evaluate the project's potential impacts on biological resources. No sensitive resources, including burrowing owl (California species of special concern) and flat-tailed horned lizard (BLM sensitive species), were identified within the BSA. With implementation of Mitigation Measures BIO-1 through BIO-5, the project would not result in residual significant and unmitigable impacts on biological resources.

Source: County of Imperial 1993
BLM=Bureau of Land Management; CDFW – California Department of Fish and Wildlife; EIR – environmental impact report; USFWS – U.S. Fish and Wildlife Service

The Agricultural Element of the County's General Plan serves as the primary policy statement for implementing development policies for agricultural land use in Imperial County. The goals, objectives, implementation programs, and policies found in the Agricultural Element provide direction for new development as well as government actions and programs. Imperial County's Goals and Objectives are intended to serve as long-term principles and policy statements to guide agricultural use decision-making and uphold the community's ideals.

Agriculture has been the single most important economic activity in the County throughout its history. The County recognizes the area as one of the finest agricultural areas in the world because of several environmental and cultural factors, including good soils, a year-round growing season, the availability of adequate water transported from the Colorado River, extensive areas committed to agricultural production, a gently sloping topography, and a climate that is well-suited for growing crops and raising livestock. The Agricultural Element in the County General Plan demonstrates the long-term commitment by the County to the full promotion, management, use, and development and protection

of agricultural production, while allowing logical, organized growth of urban areas (County of Imperial 2015).

Other Applicable Regulations, Plans and Standards

California Native Plant Society Rare Plant Program

As part of the CNPS Rare Plant Program, if a species has been identified as being of potential conservation concern, it is put through an extensive review process. Once a species has gone through the review process, information on all aspects of the species (e.g., listing status, habitat, distribution, threats, etc.) are entered into the online CNPS Inventory and given a CRPR. The CNPS Rare Plant Program currently recognizes more than 1,600 plant taxa (species, subspecies, and varieties) as rare or endangered in California.

3.4.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts on biological resources, the methodology employed for the evaluation, an impact evaluation, and mitigation requirements, if necessary.

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to biological resources are considered significant if any of the following occur:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS
- Have a substantial adverse effect on state or federally-protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filing, hydrological interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish and wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

Methodology

This analysis evaluates the potential for the project, as described in Chapter 2, Project Description, to result in significant impacts on biological resources based on the criteria established in Appendix G of the CEQA Guidelines.

Impact Analysis – Solar Energy Facility and Gen-Tie Line

As indicated in Table 3.4-5 and depicted on Figure 3.4-1, construction of the proposed project would result in the direct, long-term (20-25 year) loss of 115.4 acres of native Creosote Bush – White Bursage Scrub and 0.2 acre of Blue Palo Verde – Ironwood Woodland. In addition to habitat removal, grading may also result in the direct, albeit incidental, mortality of ground-dwelling insects, reptiles, amphibians, and mammals, and nesting birds. Construction of the project may fill or modify washes that are regulated by USACE, CDFW, and/or RWQCB. Construction activities may also result in indirect impacts on adjacent biological resources by introducing water quality or air pollutants (e.g., sediment and dust), altering drainage patterns, introducing non-native species that may compete or prey upon native species, introducing night lighting, or causing edge effects that can disorient wildlife, make them more susceptible to predation, or increase the threat of wildfire.

Table 3.4-5. Vegetation Communities and Other Land Cover Types Impacted by the Project

Vegetation Community or Land Cover Type	Project Impacts (acres)
Creosote Bush – White Bursage Scrub	115.4
Arrow Weed Thickets	0.0
Blue Palo Verde – Ironwood Woodland	0.2
Tamarisk Thickets	0.0
Agriculture	0.0
Disturbed/Developed	7.1
Total	**122.7**

Source: Appendix E of this EIR

Project operations, although requiring minimal active management, have potential to directly or indirectly impact biological resources. Photovoltaic solar panels and the associated gen-tie line may be struck by birds as they fly through the site or may increase the risk of electrocution for larger birds such as raptors. Certain waterfowl species may be lured to the site and become trapped if they are not capable of taking flight from land. Vehicle travel on the site has potential to strike wildlife and introduce non-native plant species. Trash or carcass remains may increase the presence of scavengers, such as ravens and crows, which may prey on other species' eggs or juveniles. Panel washing may change drainage patterns or transport pollutants or sediment off-site where it may adversely impact downstream aquatic resources.

A more detailed analysis of these potential impacts is provided below.

Impact 3.4-1 Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

Special-Status Plant Species

FEDERALLY OR STATE-LISTED PLANT SPECIES

The proposed project site does not include suitable habitat and does not have potential to support any federally or state-listed plant species. Therefore, the project would not impact federally or state-listed plant species.

OTHER SPECIAL-STATUS PLANT SPECIES

Construction

According to the BRTR, three special-status plant species have potential to occur within the Project footprint, including Harwood's milkvetch, gravel milk-vetch, and Munz's cholla. Construction of the proposed project would result in the loss of 115.4 acres of potentially suitable creosote bush – white bursage scrub habitat for these three species, as indicated in Table 3.4-5.

Gravel milk-vetch and Munz's cholla actually have a low probability of occurring on the project site. Specifically, there are no recent records of gravel milk-vetch in Imperial County and the only records of this species in California within the past decade are from Inyo County (CCH 2020). Munz's cholla occurs at higher elevation in the Chocolate Mountains to the east of the project site (CCH 2020). Therefore, the proposed project is not anticipated to impact these two species.

The current geographic range of Harwood's milkvetch within California is relatively small. If the project site supported a substantial population of any of this species, direct loss could result in loss of local genetic variation that is important to long-term sustainability of the species. Potential indirect impacts on Harwood's milkvetch, if it occurs on site, could include the introduction of competitive invasive plant species, non-native pests, air and water quality pollutants, dust production, or drainage pattern alteration.

Operations

Project operations would result in minimal, if any, disturbance to potential habitat for special-status plant species adjacent to the project site. During ongoing operations, lighting would be minimized and personnel would only visit the site as-needed for maintenance. In addition, wastewater from panel washing would be directed away from undeveloped lands. Therefore, project operations are not expected to result in impacts on special-status plant species, if they are present in the vicinity of the project site.

Conclusion

Construction and operation of the proposed project could result in significant impacts on Harwood's milkvetch, if present. Implementation of Mitigation Measures BIO-1 and BIO-2 would reduce potential impacts to less than significant.

Special-Status Wildlife Species

FEDERALLY OR STATE-LISTED WILDLIFE SPECIES

The proposed project site occurs on the western margin of the known range of the federally and state-threatened desert tortoise and supports marginally suitable habitat for the species. Although the Coachella Canal, located approximately 0.8 mile to the northeast of the project site, provides a substantial barrier to tortoise movement, it is porous in that there are periodic gaps in the above ground canal for vehicle traffic and drainage.

Construction

If desert tortoise is present on or in the vicinity of the project site, grading and vehicular traffic could crush and kill individual tortoises or tortoises could become trapped in open trenches and may be killed due to an increased exposure to predators or extreme weather. Indirect impacts from construction would include the long-term loss of 115.4 acres of habitat and could include an increase in desert tortoise predators such as ravens and crows drawn to the project site by ground disturbing activities that expose wildlife and produce carcasses and waste for scavenging. Due to its threatened status, any direct or indirect impacts on this species resulting from construction would be considered significant.

Operation

Although vehicular traffic will be minimal because maintenance requirements are minimal, the risk of a vehicle striking a desert tortoise on site or an access road to the site remains if desert tortoise is present. Also, security fencing could pose a trapping hazard. Additionally, should the solar panels, gen-tie line, or auxiliary facilities pose a strike hazard for birds or bats, the resulting carcasses could lead to an increase in scavenger density. As described above, those scavengers pose a threat to desert tortoise. As indicated above, due to its threatened status, any direct or indirect impacts on this species resulting from operation would be considered significant.

Conclusion

Construction and operation of the proposed project would result in a significant impact on the federally and state-listed threatened desert tortoise, if present.

Implementation of Mitigation Measures BIO-2, BIO-3, BIO-4, and BIO-5 would reduce potential impacts on desert tortoise, if present, to a level less than significant.

OTHER SPECIAL-STATUS WILDLIFE SPECIES

As indicated in Table 3.4-5, suitable habitat for two Species of Special Concern, Sonoran desert toad and lowland leopard frog, is limited to the IID canal, which will not be impacted by the project and are not discussed further in this analysis. Two Species of Special Concern, mountain plover and yellow warbler, have potential as transient visitors only. These species do not rely on the project site for breeding, dispersal or foraging. Therefore, the proposed project would not result in a significant impact on these two species and they are not further addressed in this analysis.

Six other special-status wildlife species have potential to occupy the proposed project site, including five CDFW Species of Special Concern: burrowing owl, loggerhead shrike, Crissal thrasher, Le Conte's thrasher and American badger, and one CDFW Watch List species: black-tailed gnatcatcher. Four other special-status wildlife species have potential to forage on or disperse through the proposed

project site, including three Species of Special Concern: Couch's spadefoot, western mastiff bat, and pocketed free-tailed bat, and one Watch List species: merlin.

Special-Status Amphibian Species

As previously indicated, Couch's spadefoot would use the site only for dispersal. The project site is located at the extreme western margin of its range. Given that the site is also abutted by agriculture to the west, the project site is not located within a significant dispersal corridor. It also does not prevent movement to the east since it abuts undeveloped lands with suitable Couch's spadefoot habitat to the north, east and south. Therefore, the construction and operation of the proposed project does not impact Couch's spadefoot.

Special-Status Bird Species

Burrowing Owl

Burrowing owls were not present on the project site during the biological surveys. As this project is not within the IID Service District, no IID canals or drains (which are very attractive to burrowing owls) are present within the project site. However, the nearest recorded occurrence to the BSA is less than 1 mile to the west and suitable nesting and foraging habitat is present within the proposed project site. Therefore, burrowing owl could be present at the start of project construction.

Construction

If burrowing owls are present within or adjacent to the proposed project site, project construction could result in take, as defined by California FGC, if burrowing owl were trapped in burrows during grading activities or struck by vehicles. Additionally, take of an active breeding burrow complex would violate the MBTA and California FGC Sections 3503, 3503.5, 3513 and 3800. Indirect impacts from construction activities, although not meeting the definition of take, could include changes in prey diversity and abundance, changes in visibility due to dust that could affect foraging effectiveness, increases in noise levels disrupting communication between individuals, an increased risk of wildfire and an increase in the density of potential predators due to ground disturbance and food waste at the project site. However, the conversion of the project site to a solar field does not preclude burrowing owl use.

Following construction, burrowing owls are expected to persist beneath the solar panels, along the perimeter of the solar fields along canals, drains, or roads, which provide burrowing and foraging opportunities. The owls are also expected to utilize the solar field perimeter fence as a foraging perch. As a result, the proposed project would not result in significant impacts due to loss of foraging habitat. However, direct take of individual burrowing owl would be considered a significant impact. Implementation of Mitigation Measures BIO-2, BIO-3 and BIO-6 would eliminate the potential for take of burrowing owl during construction and would reduce potential impacts on this species from construction to less than significant.

Operations

As indicated above, after the solar fields are constructed, burrowing owls, if present, would be expected to continue utilizing the project site. While searching for prey, burrowing owls characteristically hover for periods of several minutes at heights of 8 to 15 meters. During the night, their foraging behavior changes to suit the reduced visibility of small food items; they may pursue arthropods on the ground by walking and running. They may also glide about 1 meter above the ground

when foraging for rodents. Given the static and highly visible nature of the solar panels and transmission towers, burrowing owls are not expected to collide with the structures during daytime foraging activities when they may be hovering or flying in search for prey. No impacts on burrowing owl are anticipated as a result of collision with facility structures, and no mitigation would be required. However, vehicles driving on access roads during operations and maintenance (O&M) activities within the solar fields and along the transmission line where burrowing owls are foraging may result in direct mortality of burrowing owl. Additionally, food waste, if not properly disposed of, could attract predators, further increasing predation risk if burrowing owl is present on or adjacent to the site. These impacts would be considered significant and mitigation would be required. Mitigation Measure BIO-5 would reduce potential impacts on burrowing owls from O&M activities to a level less than significant.

Other Special-Status Bird Species

Construction

As indicated above loggerhead shrike, Crissal thrasher, Le Conte's thrasher and black-tailed gnatcatcher have potential to reside on the project site while merlin has potential to forage on-site. These species are all relatively wide-ranging and utilize a wide range of habitats (Fink et al. 2020, United States Geological Survey [USGS] 2020). Specifically, merlin is the widest ranging species with its non-breeding range including most of the U.S., Mexico, Central America and a portion of South America. Loggerhead shrike ranges throughout much of North America and Mexico and utilizes agricultural and pasturelands in addition to native habitats. Crissal thrasher and black-tailed gnatcatcher exhibit similar ranges throughout the southwest and northern Mexico while Le Conte's thrasher exhibits the narrowest range generally including inland portions of southern California, southern Nevada, western Arizona and northern Mexico and Baja California but still encompassing over 42 million acres of suitable habitat (USGS 2020). The loss of 115.6 acres of potential live-in or foraging habitat (less than 0.0003-percent of the available habitat even for Le Conte's thrasher with the narrowest range) would have a negligible impact on sustainability of the species. Similarly, indirect impacts to a small number of individuals of these special-status species from noise, dust, night lighting or the attraction of predators and scavengers to the project site during construction would have a negligible impact on sustainability of the species. However, take of active avian nests (including loggerhead shrike, Crissal thrasher, Le Conte's thrasher and black-tailed gnatcatcher, should they reside on the project site) during clearing and grubbing would be considered adverse and significant. Implementation of Mitigation Measure BIO-7 would reduce impacts to less than significant.

Operation

All electrical components on the project site shall be either undergrounded or protected so that there will be no exposure to wildlife and therefore no potential for electrocution. Additionally, based on the Avian Powerline Interaction Committee's (APLIC) 1996 report on power line electrocution in the U.S., avian electrocution risk is highest along distribution lines (generally less than 69 kV) where the distance between energized phases, ground wires, transformers, and other components of an electrical distribution system are less than the length or skin-to-skin contact distance of birds. The distance between energized components along transmission lines (>69 kV) is generally insufficient to present avian electrocution risk. Therefore, no impact to avian or bat species is anticipated to occur due to electrocution along the proposed gen-tie line.

However, a potentially significant impact may occur to avian mortality during operations should avian species protected by California FGC collide with solar panels or any ancillary facilities such as the

Gen-tie line. These impacts would be considered significant. Implementation of Mitigation Measures BIO-5 and BIO-8 would reduce impacts to a level less than significant.

Special-Status Mammal Species

Also as indicated above American badger has potential to reside on the project site while western mastiff bat and pocketed free-tailed bat have potential to forage on-site. These species are all relatively wide-ranging and utilize a wide range of habitats (USGS 2020, Pierson and Rainey 1998). Specifically, American Badger occupies the western half of the U.S. Western mastiff bat and pocketed free-tailed bat exhibit similar ranges including the southwest U.S. and northern Mexico. As for the special-status species analyzed above, the loss of 115.6 acres of potential live-in or foraging habitat (less than 0.0003-percent of the available habitat even for Le Conte's thrasher with the narrowest range) would have a negligible impact on sustainability of the species. This would not necessarily be true if the project site supported a maternity roost habitat. However, as previously indicated, the project site does not support roosting habitat. Similarly to the special-status birds above, indirect impacts to a small number of individuals of these special-status species from noise, dust, night lighting or the attraction of predators and scavengers to the project site during construction would have a negligible impact on sustainability of the species. However, take of American Badger if residing on the project site and trapped in a burrow during grading would be considered significant. Implementation of Mitigation Measure BIO-9 will reduce potential impacts to less than significant.

Operation

All electrical components on the project site shall be either undergrounded or protected so that there will be no exposure to wildlife and therefore no potential for electrocution. The distance between energized components along transmission lines (>69 kV) is also presumed to generally insufficient to present bat electrocution risk. Therefore, no impact to bat species is anticipated to occur due to electrocution along the proposed gen-tie line.

However, a potentially significant impact may occur to bat mortality during operations should bat species collide with solar panels or any ancillary facilities such as the Gen-tie line. Implementation of Mitigation Measures BIO-5 and BIO-8 would reduce impacts to a level less than significant.

Mitigation Measure(s)

BIO-1 **Pre-Construction Plant Survey.** Prior to initiating ground disturbance, a focused survey for Harwood's milkvetch shall occur during its blooming period. A reference population shall be identified and confirmed to be blooming at the time that surveys are conducted on the project site.

Should Harwood's milkvetch be present on site, project design will be evaluated to determine if modifications can be made to avoid at least 90-percent of the observed individuals or compensatory mitigation shall be provided through off-site preservation of an equivalent population.

BIO-2 **General Impact Avoidance and Minimization Measures.** The following measures will be applicable throughout the life of the project:

- To reduce the potential indirect impact on migratory birds, bats and raptors, the project will comply with the APLIC 2012 Guidelines for overhead utilities, as appropriate, to minimize avian collisions with transmission facilities (APLIC 2012)

- All electrical components on the project site shall be either undergrounded or protected so that there will be no exposure to wildlife and therefore no potential for electrocution.
- The Project proponent shall designate a Project Biologist who shall be responsible for overseeing compliance with protective measures for the biological resources during vegetation clearing and work activities within and adjacent to areas of native habitat. The Project Biologist will be familiar with the local habitats, plants, and wildlife. The Project Biologist will also maintain communications with the Contractor to ensure that issues relating to biological resources are appropriately and lawfully managed and monitor construction. The Project Biologist will monitor activities within construction areas during critical times, such as vegetation removal, the implementation of Best Management Practices (BMP), and installation of security fencing to protect native species. The Project Biologist will ensure that all wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed.
- The boundaries of all areas to be newly disturbed (including solar facility areas, staging areas, access roads, and sites for temporary placement of construction materials and spoils) will be delineated with stakes and flagging prior to disturbance. All disturbances, vehicles, and equipment will be confined to the flagged areas.
- No potential wildlife entrapments (e.g., trenches, bores) will be left uncovered overnight. Any uncovered pitfalls will be excavated to 3:1 slopes at the ends to provide wildlife escape ramps. Alternatively, man-made ramps may be installed. Covered pitfalls will be covered completely to prevent access by small mammals or reptiles.
- To avoid wildlife entrapment (including birds), all pipes or other construction materials or supplies will be covered or capped in storage or laydown area, and at the end of each work day in construction, quarrying and processing/handling areas. No pipes or tubing of sizes or inside diameters ranging from 1 to 10 inches will be left open either temporarily or permanently.
- No anticoagulant rodenticides, such as Warfarin and related compounds (indandiones and hydroxycoumarins), may be used within the project site, on off-site project facilities and activities, or in support of any other project activities.
- Avoid wildlife attractants. All trash and food-related waste shall be placed in self-closing containers and removed regularly from the site to prevent overflow. Workers shall not feed wildlife. Water applied to dirt roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards to prevent the formation of puddles, which could attract wildlife. Pooled rainwater or floodwater within retention basins will be removed to avoid attracting wildlife to the active work areas.
- To minimize the likelihood for vehicle strikes on wildlife, speed limits will not exceed 15 miles per hour when driving on access roads. All vehicles required for O&M must remain on designated access/maintenance roads.

- Avoid night-time construction lighting or if nighttime construction cannot be avoided use shielded directional lighting pointed downward and towards the interior of the project site, thereby avoiding illumination of adjacent natural areas and the night sky.
- All construction equipment used for the Project will be equipped with properly operating and maintained mufflers.
- Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel hand-held equipment, will be stored within secondary containment when within 50 feet of open water to the fullest extent practicable. Secondary containment will consist of a ring of sand bags around each piece of stored equipment/structure. A plastic tarp/visqueen lining with no seams shall be placed under the equipment and over the edges of the sandbags, or a plastic hazardous materials secondary containment unit shall be utilized by the Contractor.
- The Contractor will be required to conduct vehicle refueling in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species. Any fuel containers, repair materials, including creosote-treated wood, and/or stockpiled material that is left on site overnight, will be secured in secondary containment within the work area and staging/assembly area and covered with plastic at the end of each work day.
- In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor will ensure that all portable fuel containers are removed from the project site.
- All equipment will be maintained in accordance with manufacturer's recommendations and requirements.
- Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan or equivalent, Materials Safety Data Sheets, and any specifications required by other permits issued for the project.
- The Contractor will utilize off-site maintenance and repair shops as much as possible for maintenance and repair of equipment.
- If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment will be used to capture spills/leaks within all areas. Where feasible, maintenance of equipment will occur in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species.
- Appropriate BMPs will be used by the Contractor to control erosion and sedimentation and to capture debris and contaminants from bridge construction to prevent their deposition in waterways. No sediment or debris will be allowed to enter the creek or other drainages. All debris from construction of the bridge will be contained so that it does not fall into channel. Appropriate BMPs will be used by the Contractor during construction to limit the spread of resuspended sediment and to contain debris.

- Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.
- Firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment.
- Cross-country vehicle and equipment use outside of approved designated work areas and access roads shall be prohibited to prevent unnecessary ground and vegetation disturbance.
- Any injured or dead wildlife encountered during project-related activities shall be reported to the project biologist, biological monitor, CDFW, or a CDFW-approved veterinary facility as soon as possible to report the observation and determine the best course of action. For special-status species, the Project Biologist shall notify the County, USFWS, and/or CDFW, as appropriate, within 24 hours of the discovery.
- Stockpiling of material will be allowed only within established work areas.
- Actively manage the spread of noxious weeds (See Mitigation Measure BIO-5)
- The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving.

BIO-3 **Worker Environmental Awareness Program.** Prior to project construction, a Worker Environmental Awareness Program shall be developed and implemented by a qualified biologist, and shall be available in both English and Spanish. Handouts summarizing potential impacts to special-status biological resources and the potential penalties for impacts to these resources shall be provided to all construction personnel. At a minimum, the education program shall including the following:

- the purpose for resource protection;
- a description of special status species including representative photographs and general ecology;
- occurrences of USACE, RWQCB, and CDFW regulated features in the Project study area;
- regulatory framework for biological resource protection and consequences if violated
- sensitivity of the species to human activities;
- avoidance and minimization measures designed to reduce the impacts to special-status biological resources
- environmentally responsible construction practices;
- reporting requirements;,
- the protocol to resolve conflicts that may arise at any time during the construction process; and

- workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed and would be kept on record

BIO-4 **Desert Tortoise Avoidance and Minimization** A qualified biologist shall conduct focused presence/absence surveys for Desert Tortoise for 100-percent of the project footprint pursuant to the October 19, 2019 Version of the USFWS Desert Tortoise Survey Protocol. If no live desert tortoise or sign of active desert tortoise are detected, no further avoidance and minimization is required.

If live desert tortoise or sign of active desert tortoise are detected, the project proponent shall initiate consultation with USFWS and CDFW to obtain the necessary federal and state ESA authorizations and the following avoidance, minimization and compensatory mitigation measures will be implemented:

- Permanent tortoise-proof fencing shall be along the perimeter of the project site. Fencing shall be installed, inspected, and maintained according to specifications in the current USFWS *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)*. An authorized desert tortoise biologist shall conduct pre-construction clearance surveys for the project site no more than 14-days prior to the initiation of fence installation. All potentially active burrows shall be identified for hand excavation. Pre-construction clearance surveys shall be repeated within the fenced impact area after fence installation is complete. If desert tortoise are observed they shall be relocated from within the work area to outside the fenced area by a permitted biologist.
- The authorized biologist shall conduct desert tortoise pre-construction clearance surveys along all existing and new dirt access road alignments, and the Gen-tie alignment before any ground disturbing activities are initiated and prior to the start of construction activities each day during ground-disturbing activities and weekly thereafter. Relocate desert tortoises as necessary. Any handling of special-status species must be approved by the appropriate Federal and State agencies and be done in accordance with species-specific handling protocols.
- Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of the authorized biologists with demonstrated prior experience with this species.
- Inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat, before the materials are moved, buried, or capped.
- Incorporate Raven Management into the Pest Control Plan (See BIO-5)
- Inspect the ground under vehicles and equipment for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, an authorized biologist or biological monitor under the direction of the authorized biologist may remove and relocate the animal to a safe location.

- All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages. If possible, pipes and culverts greater than 3 inches in diameter would be stored on dunnage to prevent wildlife from taking refuge in them, to the extent feasible.
- To fully mitigate for habitat loss and potential take of the Mojave desert tortoise, the Applicant will provide compensatory mitigation at a ratio of 1:1 ~~3:1~~. For the purposes of this measure, the project site (i.e., footprint) means all Project areas with new direct ground disturbance during construction and operation of the Project. This includes all lands directly disturbed that will no longer provide viable long-term habitat for the Mojave desert tortoise, such as the solar field, substation and new access roads. Areas within the gen-tie line corridor where no ground disturbance will occur are not included in the area to be mitigated through compensation. Compensatory mitigation could include agency-approved payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on preservation lands; or a combination of the three.

BIO-5 **Prepare and Implement an Operation and Maintenance Worker Education Plan.** An Operation and Maintenance Worker Education Plan shall be prepared to advise personnel on general operations measures. The Worker Education Plan shall be submitted to the County of Imperial Planning and Development Services Department for review and approval prior to issuance of building permits. The following provisions shall be included in the Worker Education Plan and implemented throughout the operational lifespan of the Project: Operation and maintenance personnel shall be prohibited from:

- Exceeding nighttime and daytime vehicle speeds of 10 miles per hour and 25 miles per hour, respectively, within the facility, on access roads and within the Gen-Tie line corridor. Speed limit signs shall be posted throughout the project site to remind workers of travel speed restrictions.
- Harming, harassing, or feeding wildlife and/or collecting special-status plant or wildlife species.
- Disturbing active avian nests
- Traveling (either on foot or in a vehicle) outside of the Project footprint except on public roads.
- Littering on the Project area.
- Allowing persons not employed at the facility to remain on site after daylight hours.
- Exceeding normal nighttime operational noise or lighting levels
- Bringing domestic pets and firearms to the site.

The Operation and Maintenance Worker Education Plan shall require that:

- All operation and maintenance vehicles and equipment park in approved designated areas only.
- The project site and Gen-Tie line corridor be kept clear of trash and other litter to reduce the attraction of opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species.
- Operation and maintenance employees maintain Hazardous Materials Spill Kits on-site. All operation and maintenance staff shall be trained in how to use Hazardous Materials Spill Kits in the event of a spill.
- An approved Long-Term Maintenance Plan for the retention/detention basins be developed and implemented.
- Weed and Raven management shall be addressed in a project-specific pest management plan (See BIO-5)
- Maintain shielding on external lighting to direct down and towards the project site and away from adjacent undeveloped land.
- Workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed and would be kept on record
- desert tortoise avoidance and minimization measures be implemented if desert tortoise is detected during pre-construction surveys
- The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving.
- Personnel are trained to avoid causing wildfires and manage them safely and promptly if necessary

BIO-6 **Burrowing Owl Avoidance and Minimization.** Take Avoidance (pre-construction) surveys for burrowing owl shall be completed prior to project construction. Surveys shall be conducted as detailed within Appendix D of the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game [CDFG] 2012). If burrowing owl is not detected, construction may proceed.

- If burrowing owl is identified during the non-breeding season (September 1 through January 31), then a 50 meter buffer will be established by the biological monitor. Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until a CDFW-approved exclusion plan has been implemented. The buffer distance may be reduced if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities.
- If burrowing owl is identified during the breeding season (February 1 through August 31), then an appropriate buffer will be established by the biological monitor in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until young have fledged. The buffer distance may be reduced in consultation with CDFW if noise attenuation buffers

such as hay bales are placed between the occupied burrow and construction activities.

BIO-7 **Pre-Construction Nesting Bird Surveys.** To the extent possible, construction shall occur outside the typical avian breeding season (February 15 through September 15). If construction must occur during the general avian breeding season, a pre-construction nest survey shall be conducted within the impact area and a 500-foot (150-meter) buffer by qualified biologist no more than 7 days prior to the start of vegetation clearing and/or ground disturbing construction activities in any given area of the Project footprint. Construction crews shall coordinate with the qualified biologist at least 7 days prior to the start of construction in a given area to ensure that the construction area has been adequately surveyed. A nest is defined as active once birds begin constructing or repairing the nest in readiness for egg-laying. A nest is no longer an "active nest" if abandoned by the adult birds or once nestlings or fledglings are no longer dependent on the nest. If no active nests are discovered, construction may proceed. If active nests are observed that could be disturbed by construction activities, these nests and an appropriately sized buffer (typically a 200-foot (61-meter) buffer for non-raptor species nests and at least a 500-foot (150-meter) buffer for raptor or federally listed species nests) would be avoided until the young have fledged. Final construction buffers or setback distances shall be determined by the qualified biologist in coordination with USFWS and CDFW on a case-by-case basis, depending on the species, season in which disturbance shall occur, the type of disturbance, and other factors that could influence susceptibility to disturbance (e.g., topography, vegetation, existing disturbance levels, etc.). Active nests shall be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated to the nesting birds or their young. If vegetation clearing and/or ground disturbing activities cease for 14 or more consecutive days during the nesting season in areas where suitable nesting habitat remains, repeat nesting bird surveys shall be required to ensure new nesting locations have not been established within the impact area and the defined buffers.

BIO-8 **Develop a Bird and Bat Conservation Strategy (BBCS)**. A BBCS shall be developed by the Project Applicant in coordination with the County of Imperial, USFWS, and CDFW.

The BBCS will include the following components:

- A description and assessment of the existing habitat and avian and bat species;
- An avian and bat risk assessment and specific measures to avoid, minimize, reduce, or eliminate avian and bat injury or mortality during all phases of the project.
- A post-construction monitoring plan that will be implemented to assess impacts on avian and bat species resulting from the Project.
- The post-construction monitoring plan will include a description of standardized carcass searches, scavenger rate (i.e., carcass removal) trials, searcher efficiency trials, and reporting. Statistical methods will be used to estimate Project avian and bat fatalities if sufficient data is collected to support statistical analysis.

- An injured bird response plan that delineates care and curation of any and all injured birds.
- A nesting bird management strategy to outline actions to be taken for avian nests detected within the impact footprint during operation of the Project.
- A conceptual adaptive management and decision-making framework for reviewing, characterizing, and responding to monitoring results.
- Monitoring studies following commencement of commercial operation of each CUP area. Monitoring results will be reviewed annually by the Applicant and the County of Imperial, in consultation with CDFW and USFWS, to inform adaptive management responses. During Project construction, incidental avian carcasses or injured birds found during construction shall be documented. Should a carcass be found by Project personnel, the carcass shall be photographed, the location shall be marked, the carcass shall not be moved, and a qualified biologist shall be contacted to examine the carcass. When a carcass is detected, the following data shall be recorded (to the extent possible): observer, date/time, species or most precise species group possible, sex, age, estimated time since death, potential cause of death or other pertinent information, distance and bearing to nearest structure (if any) that may have been associated with the mortality, location (recorded with Global Positioning System), and condition of carcass.
- If any federal listed, state listed or fully protected avian carcasses or injured birds are found during construction or post-construction monitoring, the Project Applicant shall notify USFWS and CDFW within 24 hours via email or phone and work with the resource agencies to determine the appropriate course of action for these species. For such listed species, the CUP owner shall obtain or retain a biologist with the appropriate USFWS Special Purpose Utility Permit(s) and CDFW Scientific Collecting Permit(s) to collect and salvage all dead and injured birds, and store/curate them in freezers for later disposition and analysis.

BIO-9 **Pre-Construction Surveys for American Badger** Preconstruction surveys shall be conducted by a qualified biologist for the presence of American badger dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for American badger, which include desert scrub habitats. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the project site disturbed. If potential dens are observed and avoidance is feasible, the following buffer distances shall be established prior to construction activities:

- American badger potential den: 30 feet.
- American badger active den: 100 feet.
- American badger natal den: 500 feet.
- If avoidance of the potential dens is not possible, the following measures are required to avoid potential adverse effects to the American badger
- Outside the reproductive season defined as February 1 through September 30 for American badger if the qualified Lead Biologist determines through camera monitoring for three consecutive days that potential dens are inactive, the biologist

shall excavate these dens by hands with a shovel to prevent American badgers from re-using them during construction.

- Outside of the reproductive season defined as February 1 through September 30 for American badger if the Lead Biologist determines that potential dens may be active, an onsite passive relocation program shall be implemented. This program shall consist of excluding American badgers from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for seven days to confirm usage has discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that American badgers have stopped using the dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent use during construction.

Impact 3.4-2 Would the project 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 CDFW or USFWS?

Arrow weed thickets are recognized by CDFW as a sensitive vegetation type. Arrow weed thickets occurs on approximately 0.41 acres along the small section of the East Highline Canal within the southwestern corner of the BSA. However, as shown on Figure 3.4-1, the proposed project would avoid the arrow weed thickets. Therefore, the proposed project would not impact a sensitive natural community and no impact would occur.

CONSTRUCTION

The proposed project results in the direct long-term (20-25-year) loss of riparian Blue Palo Verde-Ironwood Woodland associated with the northwestern wash where on-site drainage will be discharged. As described above in the *Regulatory Setting* and *Jurisdictional Waters* sections, the ephemeral washes on site may also be regulated by USACE and RWQCB pursuant to the Clean Water Act, RWQCB pursuant to the Porter-Cologne Act and CDFW pursuant to California FGC Section 1600. As such, impacts to these features are included in this analysis. As depicted on Figure 3.4-2 and in Table 3.4-6, construction on the proposed project would result in long-term (20-25 year) discharge of fill to 6.00 acres of potential Waters of the U.S. and 8.20 acres CDFW State Waters and temporary discharge of fill to 0.07 acre of potential USACE non-wetland Waters of the U.S. and 0.10 acre of CDFW State Waters. These impacts are considered significant. Implementation of Mitigation Measure BIO-10 would reduce impacts to less than significant.

Table 3.4-6. Jurisdictional Features Occurring within the Biological Study Area and Impacts

Non-Wetland Waters of the U.S. (acres)			CDFW Jurisdictional Waters (acres)		
BSA	Project Temporary Impact Area	Project Permanent Impact Area	BSA	Project Temporary Impact Area	Project Permanent Impact Area
19.15	0.07	6.00	28.53	0.10	8.20

Source: Appendix E of this EIR

The ephemeral washes and associated riparian habitat adjacent or downstream of the proposed project could be indirectly impacted by the introduction of non-native species that alter biogeomorphic function of the washes, alteration of drainage patterns and introduction of pollutants such as sediment or hydrocarbons into surface waters. These impacts would be considered significant. Implementation of Mitigation Measures BIO-2 and BIO-3 would reduce potentially significant impacts to less than significant.

Although the project is not within a parcel zoned for agriculture, it is adjacent to and near parcels currently being farmed. The proposed project would have potential to introduce pest such as insects, vertebrates, weeds and plant pathogens. These pests would have potential to significantly adversely affect the adjacent Important Farmlands and are subject to management by the County's Agricultural Commissioner. These impacts would be considered significant. Implementation of Mitigation Measure BIO-11 would reduce potentially significant impacts to less than significant.

OPERATION

Operation of the proposed project could also result in indirect impacts to ephemeral washes and associated riparian habitat adjacent or downstream of the proposed project could be indirectly impacted by the introduction of non-native species that alter biogeomorphic function of the washes, alteration of drainage patterns and introduction of pollutants such as sediment or hydrocarbons into surface waters. Implementation of Mitigation Measures BIO-2 and BIO-3 would reduce potential impacts to less than significant.

Mitigation Measure(s)

BIO-10 **Compensatory Mitigation for Riparian Woodland and Ephemeral Wash.** Following the completion of project construction, Palo Verde- Ironwood Woodland will be created, enhanced and or conserved within the undeveloped portions of the project site at a ratio of 3:1 (i.e., 3 acres created or enhanced for each acre impacted)by permanent or temporary project activities).

Permanent impacts to jurisdictional waters and wetlands shall be mitigated at a minimum 1:1 ratio either through on-site and/or off-site re-establishment, enhancement and conservation of jurisdictional waters or through an approved-mitigation bank or in lieu fee program, if one is available. The type of mitigation, mitigation location and the final mitigation ratios will be established during the permit process for the Project's USACE Section 404 permit, the RWQCB Section 401 Water Quality Certification, and a CDFW Streambed Alteration Agreement, as applicable.

BIO-11 **Develop and Implement a Pest Management Plan.** The Project shall develop and implement a Pest Management Plan that will reduce negative impacts to surrounding (not necessarily adjacent) farmland during construction, operation and reclamation. The Plan shall include:

- Methods for Preventing the Introduction and Spread of pests, including weeds.
- Monitoring methods for all agricultural pests and weeds with potential to adversely impact adjacent native habitat (Species on California Invasive Plants Council Inventory rated as Moderately to Highly Invasive) to including insects, vertebrates, weeds, and pathogens.

- Eradication and Control Methods All treatments must be performed by a qualified applicator or a licensed pest control business.
    - "Control" means to reduce the population of common pests below economically damaging levels, and includes attempts to exclude pests before infestation, and effective control methods after infestation.
    - Effective control methods may include physical/mechanical removal, biocontrol, cultural control, or chemical treatments.
    - Use of "permanent" soil sterilants to control weeds or other pests is prohibited due to the fact that this would interfere with reclamation.
- Notification Requirements:
    - Notify the Agricultural Commissioner's office immediately regarding any suspected exotic/invasive pest species as defined by the California Department of Food Agriculture (CDFA) and the USDA.
    - Request a sample be taken by the Agricultural Commissioner's Office of a suspected invasive species.
- Eradication of exotic pests will be done under the direction of the Agricultural Commissioner's Office and/or CDFA.
- Obey all pesticide use laws, regulations, and permit conditions.
- Allow access by Agricultural Commissioner staff for routine visual and trap pest surveys, compliance inspections, eradication of exotic pests, and other official duties.
- Ensure that all project employees that handle pest control issues are appropriately trained and certified, that all required records are maintained and available for inspection, and that all permits and other required legal documents are current.
- Maintain records of pests found and treatments or pest management methods used. Records should include the date, location/block, project name (current and previous if changed), and methods used. For pesticides include the chemical(s) used, EPA Registration numbers, application rates, etc. A pesticide use report may be used for this.
- Reporting Methods
    - Submit a report of monitoring, pest finds, and treatments, or other pest management methods to the Agricultural Commissioner quarterly within 15 days after the end of the previous quarter, and upon request.
    - The report is required even if no pests were found or treatment occurred. It may consist of a copy of all records for the previous quarter, or may be a summary letter/report as long as the original detailed records are available upon request.

Impact 3.4-3 Would the project have a substantial adverse effect on state or federally-protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filing, hydrological interruption, or other means?

The proposed project would not impact USACE wetlands. Please refer to Impact 3.4-2 above for a discussion of CDFW-regulated aquatic features.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.4-4 Would the project interfere substantially with the movement of any native resident or migratory fish and wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

As previously indicated, the project site is located at the eastern edge of the Imperial Valley and generally abutting agricultural lands to the west and undeveloped lands to the east. The project site is not situated within is significant dispersal corridor. In fact several north-south trending features already disrupt east to west movement including SR 111, Coachella Canal and East Highline Canal. Local North-South movement can continue east of the project.

Following construction of the project, ground-dwelling wildlife will continue to be able to move locally through the area using the surrounding agricultural lands, undeveloped lands and margins of the irrigation canals. As previously discussed, the project site does include a Gen-tie line with which birds may collide as they move through the area. Significant impacts could occur if CDFW-regulated bird or bat species collide with the Gen-tie line. Implementation of Mitigation Measures BIO-5 and BIO-8 would reduce this potential impact to less than significant.

Mitigation Measure(s)

Implement Mitigation Measures BIO-5 and BIO-8.

Impact 3.4-5 Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The proposed project consists of the construction and operation of a solar energy facility and associated electrical transmission lines. Development of the solar facility is subject to the County's zoning ordinance.

Pursuant to Title 9, Division 5, Chapter 19, the following uses are permitted in the S-2 zone subject to approval of a CUP from Imperial County: Major facilities relating to the generation and transmission of electrical energy provided such facilities are not under State or Federal law, to approved exclusively by an agency, or agencies of the State or Federal government, and provided such facilities shall be approved subsequent to coordination review of the IID for electrical matters. Such uses shall include but be limited to the following:

- Electrical generation plants
- Facilities for the transmission of electrical energy (100-200 kV)

- Electrical substations in an electrical transmission system (500 kv/230 kv/161 kV)

As demonstrated in Table 3.4-4 and discussed further in Section 3.9 Land Use Planning, with approval of a CUP and General Plan Amendment, the project would be consistent with Imperial County General Plan, and with biological resources policies contained therein. Therefore, implementation of the proposed project would not result in a significant impact associated the project's potential to conflict with local policies protecting biological resources.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.4-6 Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The project site is not located in a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Implementation of the proposed project would result in no impact associated with the potential to conflict with local conservation plans.

Mitigation Measure(s)

No mitigation measures are required.

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles and would not require grading or vegetation removal. No new transmission structures would be required to install the fiberoptic cable.

Construction

Staging and preparation of the poles would require vehicle traffic along the proposed route. Staging and access to each pole has the potential to crush vegetation and burrows and the temporary increase in vehicle traffic has potential to increase the risk of collision with wildlife. If desert tortoise was struck, the impact would be considered significant. Additionally, if construction was conducted during the breeding season there would be potential to damage active nests or disrupt nesting that may occur on the power poles. Taking active nests during construction would be considered a significant impact. Implementation of Mitigation Measures BIO-2, BIO-3, BIO-4, BIO-6, BIO-7 and BIO-9 shall reduce potential impacts to less than significant.

Because the fiberoptic cable is being strung on existing transmission line poles no significant new collision risk is being created. However, if traffic on the transmission line alignment is increased or maintenance activity at the poles is increased, operations could continue to result in increased risk of vegetation and burrows being crushed or of wildlife being struck be maintenance vehicles. As indicated above, if desert tortoise was struck, the impact would be considered significant. Implementation of Mitigation Measure BIO-5 would reduce potential impacts to less than significant.

3.4.4 Decommisssioning/Restoration and Residual Impacts

Decommissioning/Restoration

If at the end of the PPA term, no contract extension is available for a power purchaser, no other buyer of the energy emerges, or there is no further funding of the project, the project will be decommissioned and dismantled. Project decommissioning activities will require construction vehicles to drive across the solar facility, transmission line, and access roads. Concrete footings, foundations, and pads would be removed using heavy equipment and recycled at an off-site location. All remaining components would be removed, and all disturbed areas would be reclaimed and recontoured. Similar to project construction, if desert tortoise is present, there would be potential for individual tortoises to be struck when vehicles are moving on access roads and along the transmission line. Nesting birds and burrowing owl could occupy the project site as well as habitat abutting the access roads or transmission line and fiber optic cable corridor. Adjacent native habitats could be degraded by the introduction of invasive species or by wildlife caused by construction activities. These impacts could be significant. Implementation of Mitigation Measures BIO-2, BIO-3, BIO-4, BIO-6 and BIO-9 would reduce this impact to less than significant.

Residual

The proposed project does not impact state or federally-protected wetlands, does not conflict with any local policies or ordinances protecting biological resources and does not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

With the implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7, BIO-8 and BIO-9 the project would reduce potential impacts to special-status species, including Harwood's milkvetch, desert tortoise, burrowing owl, migratory birds, western mastiff bat, pocketed free-tailed bat and American Badger to a level less than significant.

With the implementation of Mitigation Measures BIO-2, BIO-3, BIO-5, BIO-10, and BIO 11, the project reduces potential impacts to special status ecological communities, to less than significant.

With the implementation of Mitigation Measure BIO-8 the project reduces any potential impact to avian or bat movement to less than significant.

Therefore, the project would not result in residual significant and unmitigable impacts related to biological resources.

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3.5 Cultural Resources

This section discusses cultural resources and tribal cultural resources that may be potentially impacted by the proposed project. The following identifies the existing cultural resources within the project site, analyzes potential impacts of the proposed project, and recommends mitigation measures to avoid or reduce potential impacts of the proposed project.

Information for this section is summarized from the *Cultural Resources Survey of 640-Acres Proposed for Alternative Energy Exploration* prepared by Tierra Environmental Services. This report is included in Appendix H of this EIR.

3.5.1 Existing Conditions

Cultural Setting

Paleoindian Period

The earliest well documented prehistoric sites in southern California are identified as belonging to the Paleoindian period, which has locally been termed the San Dieguito complex/tradition. The Paleoindian period is thought to have occurred between 9,000 years ago, or earlier, and 8,000 years ago in this region.

Although varying from the well-defined fluted point complexes, such as Clovis, the San Dieguito complex is still seen as a hunting focused economy with limited use of seed grinding technology. The economy is generally seen to focus on highly ranked resources, such as large mammals and relatively high mobility, which may be related to following large game. Archaeological evidence associated with this period has been found around inland dry lakes, on old terrace deposits of the California desert, and near the coast. The San Dieguito complex, as seen in the desert region, is generally comprised of lithic scatters and rock features associated with activities of the hunting economy. Such resources are typically located on desert pavement terraces or along ancient shorelines or major drainages (Appendix H of this EIR).

Early Archaic Period

Native Americans during the Archaic period had a generalized economic focus on hunting and gathering. In many parts of North America, Native Americans chose to replace this economy with others based on horticulture and agriculture. Southern California economies remained largely based on wild resource use until European contact. Changes in hunting technology and other important elements of material culture have created two distinct subdivisions within the Archaic period in southern California.

The Early Archaic period is differentiated from the earlier Paleoindian period by a shift to a more generalized economy and an increased focus on use of grinding and seed processing technology. At sites dated between approximately 5,000 and 1,500 years BP, the increased use of groundstone artifacts and atlatl dart points, along with a mixed core-based tool assemblage, identify a range of adaptations to a more diversified set of plant and animal resources. Variations of the Pinto and Elko series projectile points, large bifaces, manos and portable metates, and core tools are characteristic of this period. However, archaeological evidence for the Archaic period is minimal throughout the desert region and major changes in technology within this relatively long chronological unit appear limited. Several scientists have considered changes in projectile point styles and artifact frequencies

within the Early Archaic period to be indicative of population movements or units of cultural change, but these units are poorly defined locally due to poor site preservation.

Late Prehistoric Period

Around 2,000 BP, Takic-speaking people from the Great Basin region began migrating into southern California, marking the beginning of what is called the Late Prehistoric period in the southern California region. The Late Prehistoric period in this portion of Imperial County is recognized archaeologically by smaller projectile points, the replacement of flexed inhumations with cremation, the introduction of ceramics, and an emphasis on inland plant food collection and processing, especially acorns and mesquite. Inland semi-sedentary villages were established along major water courses and around springs, and montane areas were seasonally occupied to exploit mesquite, acorns, and piñon nuts. Mortars for mesquite and acorn processing increased in frequency relative to seed grinding basins.

The most numerous of the archaeological resources in the Imperial Valley date to the Late Prehistoric period. The majority of sites recorded in the region have been small temporary campsites related to processing food resources or manufacturing tools. Larger habitation sites were less common, but displayed a wider range of activities and longer periods of occupation. Typical artifacts at these sites include Desert Side-notched and Cottonwood Triangular projectile points and Lower Colorado buffware and Tizon brownware ceramics. Lithic artifacts are typically made from chert, volcanic, or quartz material.

Historic/Contact Period

Cultural activities within Imperial County between the late 1700s and the present provide a record of Native American, Spanish, Mexican, and American control, occupation, and land use.

Native American control of the southern California region ended in the political views of western nations with Spanish colonization of the area beginning in 1769. However, Native American control of the majority of California did not end until several decades later. In southern California Euroamerican control was firmly established by the end of the Garra uprising in the early 1850s.

The Spanish Period (1752-1821) represents a period of Euroamerican exploration and settlement. The first Europeans to arrive in this region were the Spanish, who traveled along the California Coast by ships establishing settlements and missions to secure their hold on California. Using these same ships, they traveled around the Golfo de California and up the Colorado River, establishing additional settlements at inland locations, such as Tubac south of modern Tucson. In 1772, Pedro Fages, Commandante of California, pursued several deserters into the arid territory from his headquarters in San Diego. Fages was perhaps the first white person to see the Imperial Valley.

At about the same time, Juan Bautista de Anza was Commandante of the Spanish settlement of Tubac. In 1774, Anza received permission to explore the Gila and Colorado rivers in search of a trans-desert route. His journey from Tubac to the San Gabriel Mission in California took approximately three months. Portions of Anza's route were used for mail delivery by the Spanish and ran through Imperial Valley to what is now Riverside County and beyond. However, hostilities broke out between the Spanish and Colorado River tribes in 1781 and the route was abandoned. The cultural and institutional systems established by the Spanish continued beyond the year 1821, when California came under Mexican rule. During this period the Native American populations of the Colorado Desert remained relatively unaffected due to their isolation from the coast.

The Mexican Period (1821-1848) includes the retention of many Spanish institutions and laws. During this period the Romero Expedition passed through Cahuilla territory looking for a new route to the

Colorado River. They provided some of the earliest records of Cahuilla culture. The mission system was secularized in 1834 which dispossessed many Native Americans and increased Mexican settlement. After secularization, large tracts of land were granted to individuals and families and the rancho system was established. Cattle ranching dominated other agricultural activities during the early part of this period. The Mexican Period ended when Mexico ceded California to the United States after the Mexican-American War of 1846-48.

The American Period (1848-Present) began following the Mexican-American War, the U.S. assumed control of the area. Not much changed with transfer of governmental power until 1849 when gold was discovered in California. The ensuing gold rush brought an estimated 70,000 people through the desert on their way to the gold fields of northern California. Many of these people traveled along the Southern Emigrant Trail which itself was an appropriation of older Native American trails. Afterwards, gold strikes in the eastern portion of Imperial County during the early 1850s attracted some mining interests. However, few settled in the Imperial Valley.

In the 1870s, interest in the area began to pick up as the U.S. Government sent out surveying parties to investigate the potential agricultural uses of the Colorado River. It was during this time that Southern Pacific Railroad completed its line through the desert to Yuma. During the 1880s and 1890s, Imperial Valley was used as grazing lands for herds that would feed on grasses grown in areas fed by overflow from the Colorado River. However, there were few wells in Imperial Valley and most of the water had to be imported by rail from Coachella Valley. It was not until the shortage of water in the valley was overcome that white settlement in the valley began to rise.

As early as the 1850s, plans to irrigate the valley using water from the Colorado River had been developed but it wasn't until the turn of the 20th century that work was begun on the Alamo Canal. The Alamo Canal coursed along the U.S-Mexico border, crossing into Mexico then back into the U.S. This required cooperation and permission from both nations' governments. From the completion of the Alamo canal in 1902 to the year 1905, the population of Imperial Valley jumped from a few hundred to 12,000 and arable land increased from 1,500 acres to 67,000 acres. The new water source helped to establish cities such as El Centro, Imperial, Brawley and Niland.

The Salton Sea was created in 1905 when the Colorado River breached an Imperial Valley diversion channel and began to fill the Salton Sink. It took two years before the course of the river was restored to the Gulf of California. Imperial County was established in 1907. Political instability in Mexico necessitated the construction of another canal built completely on United States soil to ensure a reliable source of water to the farmers of the Imperial Valley.

The All-American canal was built to meet this need in years from 1934-1940. The completion of the All-American canal and its four tributaries, the Coachella Canal, East Highline Canal, Central Canal, and Westside Main Canal finally established a stable source of water that would reach throughout the valley. The Coachella Canal, completed in 1949, runs adjacent to portions of the project area. The construction of these canals allowed for the expansion of agriculture and reclamation of the land. Agriculture continues to dominate the region's land use, including neighboring sections.

Local Setting

The project area is located in Township 10 South, Range 14 East on the Wister and Iris Wash USGS 7.5' Quadrangles, Section 27. The project area is located on one parcel of land approximately 640 acres in size. The proposed project would be located on approximately 100 acres within the northwest portion of the 640-acre parcel.

The project site is located on the eastern edge of active agricultural lands with desert lands located immediately to the east and beyond. Road construction, off-road activity and the construction of the Coachella Canal have disturbed the project area to varying degrees.

The cultural resources survey report prepared for the project included archival and other background studies, in addition to a field survey. The archival research consisted of a literature and records search conducted for the project in addition to identifying previously recorded resources and to determine the types of resources that might occur in the survey area.

Records Search

The records search indicated that 10 archaeological studies have been conducted within a one mile radius of the project. Five of those studies covered a portion of the project area. Four of these were regional overviews of the general area and only one, Sowell 2005, surveyed a portion of Section 27. This survey covered less than five percent of the project area.

Previously Recorded Resources

Eighteen previously recorded resources have been identified within a one-mile radius of the project area (Table 3.5-1).This includes CA-IMP-68, which was originally recorded as site C-20 in 1920 and 1939 by Malcolm Rogers.

Since that time, seven other resources (CA-IMP-118, CA-IMP-6659, CA-IMP- 7866, and CA-IMP-8479 through 8482) were identified nearby and subsumed into the record for CA-IMP-68. The site is located at the edge of West Mesa along the old shoreline of Lake Cahuilla and extending west and below sea level. The resource was identified as a village site of approximately 0.75-mile long, along the 10-foot contour line. The site included housepits and freshwater mussel shell deposits. In 1951, the site was further recorded. Cremations were located within the site's boundaries along with projectile points, knives, scrapers, pottery, shell, bone, metates, manos and painted pebbles. The artifacts were collected and stored at the San Diego Museum of Man. It appears that the site forms were updated in the 1990s using information from a 1951 update to fill in some of the data that was missing when the site was first recorded. The records show the site to be 1400m long east/west and 800m north/south with the sea level contour being its furthest extent west. The site was identified as nearly destroyed at that time and later forms record this as well. It should be noted that CA-IMP-118 is the same as CA-IMP- 68 but was erroneously given a new trinomial.

The remaining sites subsumed under CA-IMP-68 (sites CA-IMP-6659, CA-IMP-7866, and CA-IMP-8479 through 8482) are located in Section 26. With the exception of CA-IMP-6659, the sites were recorded during a BLM survey of land which was transferred to the County of Imperial for the currently operating Niland Landfill in 1999. The sites are comprised of individual sparse lithic and ceramic scatters.

Table 3.5-1. Previously Recorded Cultural Resources Located Within a 1-Mile Radius of the Project Area

Site No.	Description	CEQA Eligibility
CA-IMP-00068	Habitation Site: Cremation, Groundstone, Lithic-Pottery Scatters, Shell, Painted Pebbles, Points, Hearths, Slabs	Not Eligible
CA-IMP-00118	Subsumed under CA-IMP-00068, Shell Midden and House Pits	Not Eligible
CA-IMP-01142	Trail and Lithic Scatter	Unknown
CA-IMP-06506	Lithic Scatter	Unknown
CA-IMP-06507	Occupation Site	Unknown
CA-IMP-06653	Ceramic Scatter	Not Eligible
CA-IMP-06654	Occupation Site	Not Eligible
CA-IMP-06655	Lithic and Ceramic Scatter	Not Eligible
CA-IMP-06656	Lithic Scatter	Not Eligible
CA-IMP-06657	Ceramic Scatter	Unknown
CA-IMP-06658	Temporary Campsite	Not Eligible
CA-IMP-06659	Rock Circle with sherd and lithic, Subsumed under CA-IMP-00068	Unknown
CA-IMP-06889	Isolate: Lithic	Not Eligible
CA-IMP-07866	Lithic Scatter, Subsumed under CA-IMP-00068	Unknown
CA-IMP-08479	Lithic Scatter, Subsumed under CA-IMP-00068	Unknown
CA-IMP-08480	Lithic Scatter, Subsumed under CA-IMP-00068	Unknown
CA-IMP-08481	Lithic Scatter, Subsumed under CA-IMP-00068	Unknown
CA-IMP-08482	Lithic Scatter, Subsumed under CA-IMP-00068	Possibly Eligible

Source: Appendix H of this EIR

Sacred Lands File Database

A letter was sent to the Native American Heritage Commission (NAHC) to request a search of the sacred lands in regards to the project area on May 11, 2010. On May 24, 2010, the NAHC responded that no previously identified cultural resources were known to be in the vicinity of the project area. The response letter from the NAHC is included in the *Cultural Resources Survey of 640-Acres Proposed for Alternative Energy Exploration* (Appendix H of this EIR).

Field Survey

A total area of approximately 640 acres was surveyed from April 6-9, 2010 for the project. An intensive survey using parallel transects with 10 to 15 meter intervals was conducted throughout the project

area. Visibility in the project area was excellent with few hindrances. Vegetation in the project area was sparse and the ground surface was open with nearly 100 percent visibility. Much of the project area has been disturbed, particularly in the eastern half, but numerous areas have been previously cut by bulldozers or grubbed and vegetation has only recently begun to re-establish itself. Two Global Positioning System (GPS) units were running during the entire survey and used to maintain transect integrity and record cultural resources locations.

Eighteen cultural resources were identified during the survey. These resources are summarized in Table 3.5-2. These resources include five prehistoric archaeological sites, three historic can dumps, two prehistoric trails, and eight prehistoric isolates. The prehistoric sites are ceramic and lithic scatters or temporary camps. The isolates include cores, flakes, and potsherds. Full descriptions of the resources are provided in the cultural resource survey report (Appendix H of this EIR).

As shown in Table 3.5-2, six cultural resources within the 640-acre survey area are recommended for listing in the California Register of Historical Resources (CRHR). None of these cultural resources recommended for listing in the CRHR are located within the 100-acre solar energy facility, or along proposed access roads, gen-tie, or fiber optic alignment.

Table 3.5-2. Cultural Resources Located within 640-acre Survey Area

Site No.	Description	Recommended as California Register Eligible?
CA-IMP-68/118	Large habitation/village site	No
OS27-1	Isolate buff pot sherd	No
OS27-2	Isolate buff pot sherds	No
OS27-3	Obsidian chunk manuport	No
OS27-4	Trail segment, 10 meters long	Possibly
OS27-5	Isolate buff pot sherd	No
OS27-6	Historic can dump	No
OS27-7	Trail segment, 25 meters long	Possibly
OS27-8	Isolate secondary flake	No
OS27-9	Isolate buff pot sherd	No
OS27-10	Historic can dump	No
OS27-11	Isolate jasper core fragment	No
OS27-12	Ceramic scatter	Possibly
OS27-13	Isolate buff pot sherd	No
OS27-14	Large ceramic scatter	Possibly
OS27-15	Ceramic and lithic scatter with cleared circles	Possibly

Table 3.5-2. Cultural Resources Located within 640-acre Survey Area

Site No.	Description	Recommended as California Register Eligible?
OS27-16	Ceramic and lithic scatter with a rock circle	Possibly
OS27-17	Ceramic scatter	No
OS27-18	Historic can dump	No

Source: Appendix H of this EIR

3.5.2 Regulatory Setting

This section identifies and summarizes federal, state, and local laws, policies, and regulations that are applicable to the project.

Federal

National Historic Preservation Act

Federal regulations (36 CFR Part 800.2) define historic properties as "any prehistoric or historic district, site, building, structure, or object included, or eligible for inclusion in, in the National Register of Historic Places." Section 106 of the National Historic Preservation Act (NHPA) (Public Law 89-665; 80 Stat 915; USC 470, as amended) requires a federal agency with jurisdiction over a project to take into account the effect of the project on properties included in or eligible for the (NRHP, and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. The term "cultural resource" is used to denote a historic or prehistoric district, site, building, structure, or object, regardless of whether it is eligible for the NRHP.

Native American Graves Protection and Repatriation Act (1990); Title 25, United States Code Section 3001, et seq.

The Native American Graves Protection and Repatriation Act defines “cultural items,” “sacred objects,” and “objects of cultural patrimony;” establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for the return of specified cultural items.

State

California Office of Historic Preservation

The California Office of Historic Preservation (OHP) administers state and federal historic preservation programs and provides technical assistance to federal, state, and local government agencies, organizations, and the general public with regard to historic preservation programs designed to identify, evaluate, register, and protect California's historic resources.

Section 15064.5 of the CEQA Guidelines also requires that Native American concerns and the concerns of other interested persons and corporate entities, including but not limited to museums, historical commissions, associations, and societies be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and

associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains (HSC Section 7050.5, PRC Sections 5097.94 et seq.).

CEQA Guidelines: Historical Resources Definition

CEQA Guidelines Section 15064.5(a) defines a historical resource as:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR (PRC Section 5024.1; Title 14 CCR, Section 4850 et seq.).

(2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(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 may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (PRC Section 5024.1; Title 14 CCR, Section 4852) including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important to our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.[1]

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1.

CEQA Guidelines: Archaeological Resources

Section 15064.5(c) of CEQA Guidelines provides specific guidance on the treatment of archaeological resources as noted below.

(1) When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource, as defined in subdivision (a).

[1] Ibid.

(2) If a lead agency determines that the archaeological site is an historical resource, it shall refer to the provisions of Section 21084.1 of the Public Resources Code, and this section, Section 15126.4 of the Guidelines, and the limits contained in Section 21083.2 of the Public Resources Code do not apply.

(3) If an archaeological site does not meet the criteria defined in subdivision (a), but does meet the definition of a unique archeological resource in Section 21083.2 of the Public Resources Code, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c–f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.

(4) If an archaeological resource is neither a unique archaeological nor an historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

CEQA Guidelines: Human Remains

Section 15064.5 of CEQA Guidelines provides specific guidance on the treatment of human remains pursuant to PRC § 5097.98, which provides specific guidance on the disposition of Native American burials (human remains), and fall within the jurisdiction of the NAHC:

(d) When an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in Public Resources Code Section 5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the NAHC. Action implementing such an agreement is exempt from:

(1) The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (HSC Section 7050.5).

(2) The requirements of CEQA and the Coastal Act.

(e) In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps should be taken:

(1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

(A) The coroner or the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and

(B) If the coroner determines the remains to be Native American:

1. The coroner shall contact the NAHC within 24 hours.
2. The NAHC shall identify the person or persons it believes to be the most likely descended from the deceased Native American.
3. The mostly descendent may make recommendations to the landowner of the person responsible for the excavation work, for means of treating or disposing of,

with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code section 5097.98, or

(2) Where the following conclusions occur the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.

(A) The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission.

(B) The descendant fails to make a recommendation; or

(C) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the NAHC fails to provide measures acceptable to the landowner.

(f) As part of the objectives, criteria, and procedures required by Section 21082 of the Public Resources Code, a lead agency should make provisions for historical or unique archaeological resources accidentally discovered during construction. These provisions should include an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place."

Assembly Bill 4239

AB 4239, passed in 1976, established the NAHC as the primary government agency responsible for identifying and cataloging Native American cultural resources. The bill authorized the Commission to act in order to prevent damage to and insure Native American access to sacred sites and authorized the Commission to prepare an inventory of Native American sacred sites located on public lands.

Assembly Bill 52

AB 52 amends PRC 5097.94, and adds eight new sections to the PRC relating to Native Americans. AB 52 was passed in 2014 and took effect on July 1, 2015. It establishes a new category of environmental impacts that must be considered under CEQA called tribal cultural resources (PRC 21074) and establishes a process for consulting with Native American tribes and groups regarding potential impacts to tribal resources. Under AB 52, a project that may substantially change the significance of a tribal cultural resource is a project that may have a significant impact on the environment. If a project may cause a significant impact on a tribal cultural resource, the lead agency shall implement measures to avoid the impacts when feasible.

Senate Bill 18

SB 18 requires local governments to consult with tribes prior to making certain planning decisions and to provide notice to tribes at certain key points in the planning process. These consultation and notice requirements apply to approvals and amendments of both general plans (defined in Government Code §65300 et seq.) and specific plans (defined in Government Code §65450 et seq.).

Prior to the approval or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct

consultations for the purpose of preserving, or mitigating impacts on, cultural places on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code §65352.3).

Public Resources Code Section 21074

PRC Section 21074 defines a tribal cultural resource as a site, feature, place, cultural landscape, sacred place, and any object with cultural value to a California Native American Tribe. A tribal cultural resource must be on or eligible for the CRHR or must be included in a local register of historical resources. The lead agency can determine if a tribal cultural resource is significant even if it has not been evaluated for the CRHR or is not included on a local register.

Public Resources Code 5097.97

No public agency and no private party using or occupying public property or operating on public property under a public license, permit, grant, lease, or contract made on or after July 1, 1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the U.S. Constitution and the California Constitution; nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require.

Public Resources Code 5097.98 (b) and (e)

PRC 5097.98 (b) and (e) require a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the NAHC-identified most likely descendants (MLD) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reenter the remains elsewhere on the property in a location not subject to further disturbance.

California Health and Safety Code, Section 7050.5

California HSC 7050.5 makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the County Coroner.

Local

Imperial County General Plan

The Imperial County General Plan provides goals, objectives, and policies for the identification and protection of significant cultural resources. The Conservation and Open Space Element of the General Plan includes goals, objectives, and policies for the protection of cultural resources and scientific sites that emphasize identification, documentation, and protection of cultural resources. While Section 3.9, Land Use Planning, of this EIR analyzes the project's consistency with the General Plan pursuant to CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors and Planning Commission ultimately make a determination as to the project's consistency with the General Plan. Goals and Objectives applicable to the proposed project are summarized in Table 3.5-3.

Table 3.5-3. Project Consistency with Applicable General Plan Goals and Objectives

General Plan Policies	Consistency with General Plan	Analysis
Conservation and Open Space Element - *Open Space and Recreation Conservation* **Goal 1** - Environmental resources shall be conserved for future generations by minimizing environmental impacts in all land use decisions and educating the public on their value. **Objective 1.4** - Ensure the conservation and management of the County's natural and cultural resources.	Consistent	A cultural resources report was prepared for the project site. Known archaeological resources within the project site boundary will be avoided and not impacted. However, as discussed below, the proposed project has the potential to encounter undocumented historical, archaeological resources, and human remains. Implementation of Mitigation Measures CR-1, CR-2, and CR-3 would reduce potentially significant impacts on unknown historic or unique archaeological materials during construction of the project site. Implementation of Mitigation Measure CR-4 would reduce potential impacts on human remains to a level less than significant.
Objective 3.1 - Protect and preserve sites of archaeological, ecological, historical, and scientific value, and/or cultural significance.	Consistent	

Source: County of Imperial 1993
Notes:
SLF=sacred lands file

3.5.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to cultural and tribal cultural resources, the methodology employed for the evaluation, an impact evaluation, and mitigation requirements, if necessary.

Thresholds of Significance

Cultural Resources

Based on CEQA Guidelines Appendix G, project impacts related to cultural resources are considered significant if any of the following occur:

- Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5
- Disturb any human remains, including those interred outside of dedicated cemeteries

Tribal Cultural Resources

Based on CEQA Guidelines Appendix G, project impacts related to tribal cultural resources are considered significant if the project causes 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, and 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)
- 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

Methodology

This analysis evaluates the potential for the project, as described in Chapter 2, Project Description, to interact with cultural resources in the project site. Based on the extent of these interactions, this analysis considers whether these conditions would result in an exceedance of one or more of the applied significance criteria as identified above.

As indicated in the environmental setting, a cultural resources report was prepared for the project site. The report provides the results of a records search, a sacred lands file (SLF) search conducted by the NAHC, and field survey, which have been completed for the project site pursuant to CEQA. This report is included in Appendix H of this EIR. The information from the cultural resources report was reviewed and summarized to present the existing conditions and to identify potential environmental impacts, based on the significance criteria presented in this section. Impacts associated with cultural resources and tribal cultural resources that could result from project construction and operational activities were evaluated qualitatively based on site conditions; expected construction practices; materials, locations, and duration of project construction and related activities.

Impact Analysis – Solar Energy Facility and Gen-Tie

Impact 3.5-1 Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

To be considered historically significant, a resource must meet one of four criteria for listing outlined in the CRHR (CEQA Guidelines 15064.3 (a)(3)). In addition to meeting one of the criteria outlined the CRHR, a resource must retain enough intact and undisturbed deposits to make a meaningful data contribution to regional research issues (CCR Title 14, Chapter 1.5 Section 4852 [c]). Further, based on CEQA Guidelines Section 15064.5 (b), substantial adverse change would include physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is materially impaired. This can occur when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR, NRHP, a local register, or historic resources.

- Demolishes or materially alters in an adverse manner those physical characteristics that account for its identification in an historical resources survey meeting the requirements of PRC §5024.1(g), unless the public agency establishes by a preponderance of the evidence that the resource is not historically or culturally significant.

As shown in Table 3.5-2, six cultural resources within the 640-acre survey area are recommended for listing in the CRHR. None of these cultural resources recommended for listing in the CRHR are located within the proposed 100-acre solar energy facility site, or along the proposed access roads, gen-tie, or fiber optic alignment. Therefore, the proposed project would not cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5, and no impact would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.5-2 Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Pursuant to CEQA Guidelines §15064.5(c)(1) and (2), an archaeological resource includes an archaeological site that qualifies as a significant historical resource as described for Impact 3.5-1. If an archaeological site does not meet any of the criteria outlined in the provisions under Impact 3.5-1, but meets the definition of a "unique archaeological resource" in PRC 21083.2, the site shall be treated in accordance with the provisions of PRC 21083.2, unless the project applicant and public agency elect to comply with all other applicable provisions of CEQA with regards to archaeological resources. "Unique archaeological resource" means an archaeological artifact, object or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important historic event or person.

CEQA Guidelines 15064.5(c)(4) confirms that if an archaeological resource is neither a unique archaeological nor an historic resource, the effects of the project on those resources shall not be considered a significant effect on the environment.

The proposed project includes ground-disturbing activities. As such, the project has the potential to disturb previously undocumented cultural resources that could qualify as unique archaeological resources pursuant to CEQA. This potential impact is considered significant. Implementation of Mitigation Measures CR-1 and CR-2 would reduce the potential impact to a level less than significant.

Mitigation Measure(s)

CR-1 Pursuant to CEQA Guidelines §15064.5(f), in the event that previously unidentified unique archaeological resources are encountered during construction or operational repairs, archaeological monitors will be authorized to temporarily divert construction work within 100 feet of the area of discovery until significance and the appropriate

mitigation measures are determined by a qualified archaeologist familiar with the resources of the region.

Applicant shall notify the County within 24 hours. Applicant shall provide contingency funding sufficient to allow for implementation of avoidance measures or appropriate mitigation.

CR-2 In the event of the discovery of previously unidentified archaeological materials, the contractor shall immediately cease all work activities within approximately 100 feet of the discovery. After cessation of excavation, the contractor shall immediately contact the Imperial County Department of Planning and Development Services. Except in the case of cultural items that fall within the scope of the Native American Grave Protection and Repatriation Act, the discovery of any cultural resource within the project area shall not be grounds for a "stop work" notice or otherwise interfere with the project's continuation except as set forth in this paragraph.

In the event of an unanticipated discovery of archaeological materials during construction, the applicant shall retain the services of a qualified professional archaeologist, meeting the Secretary of the Interior's Standards for a Qualified Archaeologist, to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If the qualified archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the applicant shall implement an archaeological data recovery program.

Significance after Mitigation

With the implementation of Mitigation Measures CR-1 and CR-2, the project would reduce the potential impacts associated with the inadvertent discovery of archaeological resources to a less than significant level.

Impact 3.5-3 Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

During the construction and operational phases of the proposed project, grading, excavation and trenching will be required. Although the potential for encountering subsurface human remains within the project site is low, there remains a possibility that human remains are present beneath the ground surface, and that such remains could be exposed during project construction. The potential to encounter human remains is considered a significant impact. Mitigation Measures CR-1 through CR-3 would ensure that the potential impact on previously unknown human remains does not rise to the level of significance pursuant to CEQA.

Mitigation Measure(s)

Implement Mitigation Measures CR-1 and CR-2.

CR-3 In the event that evidence of human remains is discovered, construction activities within 200 feet of the discovery will be halted or diverted and the Imperial County Coroner will be notified (Section 7050.5 of the HSC). If the Coroner determines that the remains are Native American, the Coroner will notify the NAHC, which will designate a MLD for the project (Section 5097.98 of the PRC). The designated MLD

then has 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains (AB 2641). If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a document with the county in which the property is located (AB 2641).

Significance after Mitigation

Implementation of Mitigation Measures CR-1 through CR-3 will reduce the potential impact associated with inadvertent discovery of human remains to a level less than significant.

Impact 3.5-4 ***Would the project cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:***

Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)

A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

The NAHC maintains the confidential SLF which contains sites of traditional, cultural, or religious value to the Native American community. A letter was sent to the NAHC to request a search of the SLF database in regards to the project area on May 11, 2010. On May 24, 2010, the NAHC responded that no previously identified cultural resources were known to be in the vicinity of the project area.

AB 52 was passed in 2014 and took effect on July 1, 2015. It establishes a new category of environmental resources that must be considered under CEQA called tribal cultural resources (PRC 1074) and establishes a process for consulting with Native American tribes and groups regarding those resources.

AB 52 requires a lead agency to begin consultation with a California Native American Tribe that is traditionally and culturally affiliated with the geographic areas of the proposed project. In accordance with AB 52, the County provided notification of the proposed project to Native American tribes that the County understands to be traditionally and culturally affiliated with the geographic area of the proposed project. This notification was provided in a letter sent via certified mail on October 16, 2019 to the Quechan Indian Tribe, and the Torres-Martinez Desert Cahuilla Indians. Additionally, on October 16, 2019 the County provided notification in a letter sent via certified to the Augustine Band of Cahuilla Mission Indians, Camp Ban of Mission Indians Chemehuevi Reservation, Cocopah Indian Tribe, Colorado River Indian Tribe, EWIIAAPAAYP Tribal Office, Fort Yuma-Quechan Indian Tribe, Inter-Tribal Cultural Resource Protection Council, Kumeyaay Cultural Repatriation Committee, Manzanita Band of Kumeyaay Nation, LA Posta Band of Mission Indians, Torres-Martinez Desert

Cahuilla Indians, Torres-Martinez Indian Tribe and NAHC for SB-18 consultation purposes. The County requested for tribes to provide any information regarding any Traditional Cultural Properties, Sacred Sites, resource collecting areas, or any other areas of concern known to occur in the project area.

No tribes have responded that indicate the potential for traditional cultural properties or sacred sites. Therefore, the project is not anticipated to 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, and 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, and, per the criteria set forth in Section 5024.1, considering the significance of the resource to a California Native American tribe. Impacts on tribal cultural resources would be less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No new transmission structures would be required to install the fiberoptic cable. No grading or excavation would be required. Therefore, installation of the fiberoptic cable would not involve ground disturbance. Based on these considerations, installation of the fiberoptic cable is not anticipated to impact cultural resources. No impact would occur.

3.5.4 Decommissioning/Restoration and Residual Impacts

Decommissioning/Restoration

No impact is anticipated from restoration activities as the ground disturbance and associated impacts on cultural resources will have occurred during the construction phase of the project.

Residual

Implementation of Mitigation Measures CR-1 and CR-2 would reduce potentially significant impacts on unknown archaeological materials to a less than significant level during construction. Implementation of Mitigation Measure CR-3 would reduce potential impacts on human remains to a level less than significant. No unmitigable impacts on cultural resources would occur with implementation of the project.

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3.6 Geology and Soils

This section includes an evaluation of the project in relation to existing geologic and soils conditions within the project site. Information contained in this section is summarized from the *CEQA Level Geotechnical Study* prepared by Stantec. The geotechnical report prepared for the project is included in Appendix I of this EIR.

3.6.1 Existing Conditions

Geology

The project site is located in Imperial County in the eastern portion of the Colorado Desert Geomorphic Province. The Colorado Desert Geomorphic Province consists of a low-lying barren desert basin separated by northwest trending valleys of the Peninsular Ranges to the west. The province is a depressed block between active branches of alluvium covered by the San Andreas Fault. It is characterized by the ancient beach lines and silt deposits of extinct Lake Cahuilla. The province extends to the southern border of California and Mexico and Mojave Desert to the east.

The geologic conditions present within the County contribute to a wide variety of hazards that can result in loss of life, bodily injury, and property damage. Fault displacement is the principal geologic hazard affecting public safety in Imperial County. The primary seismic hazard at the project site is the potential for strong ground shaking. The project site is located within a highly active seismic zone. The nearest active major fault is the Elmore Ranch fault, located approximately 8.8 miles northwest of the project site.

Surface Subgrade Soils and Groundwater Conditions

The project site is generally underlain by Quaternary Lake Deposits, which are characterized as Pleistocene lake deposits consisting of claystone, sand, and beach gravel deposited in former extensive lake and Salton trough. The near surface (approximately 10 feet deep) soils consist of sand with variable amount of silt and clay followed by clay with variable amounts of sand (Appendix I of this EIR).

Static groundwater was not encountered during the geotechnical investigation. According to the preliminary geotechnical study, groundwater data from an offsite location approximately 8 miles southwest of the project site indicates the depth to groundwater is approximately 49 feet below the ground surface (Appendix I of this EIR).

Seismicity

Earthquakes are the result of an abrupt release of energy stored in the earth. This energy is generated from the forces which cause the continents to change their relative position on the earth's surface, a process called “continental drift.” The earth's outer shell is composed of a number of relatively rigid plates which move slowly over the comparatively fluid molten layer below. The boundaries between plates are where the more active geologic processes take place. Earthquakes are an incidental product of these processes. As a result, southern California is located in a considerably seismically active region as the Pacific Plate moves northward relative to the North American Plate at their boundary along the San Andreas Fault System.

The project site is located in the seismically active southern California region. Recent earthquakes in the project's regional area include the 1975 Brawley earthquake, the 1979 Imperial, Brawley, and Rico earthquake, and the 1987 Superstition Hills earthquake. As shown in Table 3.6-1, several active or potentially active faults are located in the vicinity of the project site.

Table 3.6-1. Nearby Faults

Fault Name	Distance (miles)	Maximum Magnitude
Elmore Ranch	8.8	6.7
South San Andreas	13.1	8.2
Imperial	23.5	7.0
Superstition Hills	24.5	6.8
San Jacinto	28.1	7.9

Source: Appendix I of this EIR

Ground Shaking

Ground shaking is the byproduct of an earthquake and is the energy created as rocks break and slip along a fault during an earthquake. The amount of ground shaking that an area may be subject to during an earthquake is related to the proximity of the area to the fault, the depth of the hypocenter (focal depth), location of the epicenter and the size (magnitude) of the earthquake. Soil type also plays a role in the intensity of shaking. Bedrock or other dense or consolidated materials are less prone to intense ground shaking than soils formed from alluvial deposition.

As the project site is located in the seismically active southern California region, strong ground shaking can be expected during moderate to severe earthquakes in the general region.

Surface Rupture

Surface rupture occurs when movement along a fault results in actual cracking or breaking of the ground along a fault during an earthquake; however, it is important to note that not all earthquakes result in surface rupture. Surface rupture almost always follows preexisting fault traces, which are zones of weakness. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. Fault creep is the slow rupture of the earth's crust. Sudden displacements are more damaging to structures because they are accompanied by shaking.

The project site is not located within a currently mapped AP Special Studies Fault Zone. As previously mentioned above, the nearest active major fault is the Elmore Ranch fault, located approximately 8.8 miles northwest of the project site. Based on this distance, and since the fault does not project towards the project site, the potential for surface fault rupture to occur on the project site is considered low.

Liquefaction

Liquefaction occurs when granular soil below the water table is subjected to vibratory motions, such as those produced by earthquakes. With strong ground shaking, an increase in pore water pressure develops as the soil tends to reduce in volume. If the increase in pore water pressure is sufficient to reduce the vertical effective stress (suspending the soil particles in water), the soil strength decreases

and the soil behaves as a liquid (similar to quicksand). Liquefaction can produce excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations.

Four conditions are generally required for liquefaction to occur:

1. Soil must be saturated (relatively shallow groundwater);
2. Soil must be loosely packed (low to medium relative density);
3. Soil must be relatively cohesionless (not clayey); and
4. Ground shaking of sufficient intensity must occur to function as a trigger of mechanism.

The project site is not located within a current, mapped California Liquefaction Hazard Zone (Appendix I of this EIR). In addition, groundwater in the site vicinity is expected to be approximately greater than 49 feet below the ground surface. Based on the near surface soil conditions and depth to groundwater, the potential for liquefaction is considered low.

Landslides

Landslides are the descent of rock or debris caused by natural factors, such as the pull of gravity, fractured or weak bedrock, heavy rainfall, erosion, and earthquakes. The project site is relatively flat, with a topographic gradient less than two percent. Due to the existing topography, landslides are not considered a potential hazard for the project.

Lateral Spreading

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or “free” face such as an open body of water, channel, or excavation. This movement is generally due to failure along a weak plane, and may often be associated with liquefaction. As cracks develop within the weakened material, blocks of soil displace laterally toward the open face. Cracking and lateral movement may gradually propagate away from the face as blocks continue to break free.

Due to the low potential for liquefaction, the depth of groundwater, and the fact that the project site is not located near free faces or bodies of water, the potential for lateral spreading is considered low.

Land Subsidence

Land subsidence is the sinking of the ground surface caused by the compression of earth materials or the loss of subsurface soil because of underground mining, tunneling, or erosion. The major causes of subsidence include fluid withdrawal from the ground, decomposing organics, underground mining or tunneling, and placing large fills over compressible earth materials. The effective stress on underlying soils is increased resulting in consolidation and settlement. Subsidence may also be caused by tectonic processes.

The project site is not located within a mapped area of known land subsidence. Due to the depth of groundwater and the fact that the project site is not located in a mapped subsidence area, the potential for subsidence is considered low. However, strong shaking in the region could cause subsidence in the loose to medium dense sand below the project site.

Soil-related Hazards

Corrosive soils can damage underground utilities including pipelines and cables, or weaken roadway structures. In addition, expansion and contraction of soil volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). Generally, sands are not considered expansive soils and clays may exhibit moderate to high expansion potential because of variation in moisture content. The near-surface soils encountered during the geotechnical investigation were mostly sandy soils whose expansion potential is considered low.

Paleontological Resources

Paleontological resources (fossils) are the remains of prehistoric plant and animal life. Fossil remains, such as bones teeth, shell, and wood, are found in geologic deposits (rock formations) within which they were originally buried.

Many paleontological fossil sites are recorded in Imperial County and have been discovered during construction activities. Paleontological resources are typically impacted when earthwork activities, such as mass excavation cut into geological deposits (formations) with buried fossils.

One area in which paleontological resources appear to be concentrated in this region is the shoreline of ancient Lake Cahuilla, which would have encompassed the present-day Salton Sea. The project site is in the Salton Basin near the shoreline of ancient Lake Cahuilla. The lake covered much of the Imperial Valley and created an extensive lacustrine environment. Lake Cahuilla experienced several fill recession episodes before it finally dried up about 300 years ago. In 1905, the Colorado River overflowed into the Salton Basin creating the present-day Salton Sea. As previously mentioned above, the project site is generally underlain by Quaternary Lake Deposits. Sediments from this formation have yielded fossilized remains of continental vertebrates, invertebrates, and plants at numerous previously recorded fossil sites in the Imperial Valley. Therefore, the paleontological sensitivity of these formations within the project site is considered to be high.

3.6.2 Regulatory Setting

This section identifies and summarizes laws, policies, and regulations that are applicable to the project.

Federal

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1977 to “reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program.” To accomplish this, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 by NEHRP, which refined the description of agency responsibilities, program goals, and objectives.

NEHRP’s mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Programs

under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards such as those to which the project would be required to adhere.

State

Alquist-Priolo Special Studies Zone Act

The Alquist-Priolo (AP) Special Studies Zone Act was passed into law following the destructive February 9, 1971 San Fernando earthquake. The AP Special Studies Zone Act provides a mechanism for reducing losses from surface fault rupture on a statewide basis. The intent of the AP Special Studies Zone Act is to ensure public safety by prohibiting the siting of most structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep. The state geologist (Chief of the California Division of Mines and Geology) is required to identify "earthquake fault zones" along known active faults in California. Counties and cities must withhold development permits for human occupancy projects within these zones unless geologic studies demonstrate that there would be no issues associated with the development of projects. According to the current AP Earthquake Fault Zone Maps produced by the California Geological Survey (CGS), the project site is not located within a currently mapped Alquist-Priolo Special Studies Fault Zone (Appendix I of this EIR).

California Building Code

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. CCR Title 24 is reserved for state regulations that govern the design and construction of buildings, associated facilities, and equipment, known as building standards. The California Building Code (CBC) is based on the Federal Uniform Building Code used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The California Health and Safety Code (HSC) Section and 18980 HSC Section 18902 give CCR Title 24 the name of California Building Standards Code. The 2019 California Building Standards Code was published on July 1, 2019, with an effective date of January 1, 2020.

Local

County of Imperial Land Use Ordinance

Title 9 Division 15 (Geological Hazards) of the County Land Use Ordinance has established procedures and standards for development within earthquake fault zones. Per County regulations, construction of buildings intended for human occupancy are prohibited across the trace of an active fault. An exception exists when such buildings located near the fault or within a designated Special Studies Zone are demonstrated through a geotechnical analysis and report not to expose a person to undue hazard created by the construction.

County of Imperial General Plan

The County of Imperial General Plan, Seismic and Public Safety Element identifies potential natural and human-induced hazards and provides policy to avoid or minimize the risk associated with hazards. The Seismic and Public Safety Element identifies 'lifelines and critical facilities' whose disruption could endanger the public safety. Lifelines are defined as networks of services that extend over a wide area and are vital to the public welfare, and can be classified into four categories: energy, water,

transportation, and communications. The IID has a formal Disaster Readiness Standard Operating Procedure for the Water Department, Power Department, and the entire District staff for response to earthquakes and other emergencies.

Table 3.6-2 analyzes the consistency of the project with specific policies contained in the County of Imperial General Plan associated with geology, soils, and seismicity. While this EIR analyzes the project's consistency with the General Plan pursuant to CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

Table 3.6-2. Project Consistency with Applicable General Plan Policies

General Plan Policies	Consistency with General Plan	Analysis
Seismic and Public Safety Element		
Goal 1. Include public health and safety considerations in land use planning.	Consistent	Division 5 of the County Land Use Ordinance has established procedures and standards for development within earthquake fault zones. Per County regulations, construction of buildings intended for human occupancy which are located across the trace of an active fault are prohibited. An exception exists when such buildings located near the fault or within a designated Special Studies Zone are demonstrated through a geotechnical analysis and report not to expose a person to undue hazard created by the construction. Since the project site is located in a seismically active area, the project is required to be designed in accordance with the CBC for near source factors derived from a design basis earthquake based on a peak ground acceleration of 0.50 gravity. It should be noted that, the project would be remotely operated and would not require any habitable structures on site. In considering these factors in conjunction with mitigation requirements outlined in the impact analysis, the risks associated with seismic hazards would be minimized. A preliminary geotechnical report has been prepared for the proposed project. The preliminary geotechnical report has been referenced in this environmental document. Additionally, a design-level geotechnical investigation would be conducted to evaluate the potential for site specific hazards associated with seismic activity.
Objective 1.1. Ensure that data on geological hazards is incorporated into the land use review process, and future development process.		
Objective 1.3. Regulate development adjacent to or near all mineral deposits and geothermal operations.		
Objective 1.4. Require, where possessing the authority, that avoidable seismic risks be avoided; and that measures, commensurate with risks, be taken to reduce injury, loss of life, destruction of property, and disruption of service.		
Objective 1.7. Require developers to provide information related to geologic and seismic hazards when siting a proposed project.		
Goal 2: Minimize potential hazards to public health, safety, and welfare and prevent the loss of life and damage to health and property resulting from both natural and human-related phenomena.		
Objective 2.2. Reduce risk and damage due to seismic hazards by appropriate regulation.		
Objective 2.5 Minimize injury, loss of life, and damage to property by implementing all state codes where applicable.		

Table 3.6-2. Project Consistency with Applicable General Plan Policies

General Plan Policies	Consistency with General Plan	Analysis
Objective 2.8 Prevent and reduce death, injuries, property damage, and economic and social dislocation resulting from natural hazards including flooding, land subsidence, earthquakes, other geologic phenomena, levee or dam failure, urban and wildland fires and building collapse by appropriate planning and emergency measures.		

Source: County of Imperial 1997

3.6.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to geologic and soil conditions, the methodology employed for the evaluation, an impact evaluation, and mitigation requirements, if necessary.

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to geology and soils are considered significant if any of the following occur:

- Directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent AP 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)
  - Strong seismic ground shaking
  - Seismic related ground failure, including liquefaction
  - Landslides
- Result in substantial soil erosion or the loss of topsoil
- 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
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property
- 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 waste water
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature

Methodology

This analysis evaluates the potential for the project, as described in Chapter 2, Project Description, to interact with local geologic and soil conditions on the project site. Based on the extent of these interactions, this analysis considers whether these conditions would result in an exceedance of one or more of the applied significance criteria as identified above.

Impact Analysis – Solar Energy Facility and Gen-Tie Line

Impact 3.6-1 Would the project directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving:

Rupture of a known earthquake fault, as delineated on the most recent AP 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)?

The project site is located in the seismically active Imperial Valley of southern California with several mapped faults of the San Andreas Fault System traversing the region. As shown in Table 3.6-1, several active or potentially active faults are located in the vicinity of the project site. No portion of the project site is located on an active fault or within a designated AP Earthquake Fault Zone and, therefore, the potential for ground rupture to occur within the project site is unlikely. Based on these considerations, no significant impact has been identified related to rupture of a known earthquake fault.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.6-2 Would the project directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving:

Strong seismic ground shaking?

As previously discussed above, the closest mapped faults to the project site are the Elmore Ranch fault (approximately 8.8 miles) and the South San Andreas fault (approximately 13.1 miles). In the event of an earthquake along one of these fault sources, seismic hazards related to ground motion could occur in susceptible areas within the project site. The intensity of such an event would depend on the causative fault and the distance to the epicenter, the moment magnitude, and the duration of shaking.

Even with the integration of building standards, ground shaking within the project site could cause some structural damage to the facility structures or, at least, cause unsecured objects to fall. During a stronger seismic event, ground shaking could expose employees to injury from structural damage or collapse of electrical distribution facilities. Given the potentially hazardous nature of the project facilities, the potential impact of ground motion during an earthquake is considered a significant impact, as proposed structures, such as the substation and transmission lines could be damaged. Implementation of Mitigation Measure GEO-1 would reduce the potential impacts associated with ground shaking to a level less than significant.

Mitigation Measure(s)

GEO-1 **Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.** Facility design for all project components shall comply with the site-specific design recommendations as provided by a licensed geotechnical or civil engineer to be retained by the project applicant. The final geotechnical and/or civil engineering report shall address and make recommendations on the following:

- Site preparation
- Soil bearing capacity
- Appropriate sources and types of fill
- Potential need for soil amendments
- Structural foundations
- Grading practices
- Soil corrosion of concrete and steel
- Erosion/winterization
- Seismic ground shaking
- Liquefaction
- Expansive/unstable soils

In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include subsurface testing of soil and groundwater conditions, and shall determine appropriate foundation designs that are consistent with the version of the CBC that is applicable at the time building and grading permits are applied for. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicant. The final geotechnical and/or civil engineering report shall be submitted to Imperial County Public Works Department, Engineering Division for review and approval prior to issuance of building permits.

Significance after Mitigation

With implementation of Mitigation Measure GEO-1, potential impacts associated with strong seismic ground shaking would be reduced to a less than significant level with the implementation of recommendations made by a licensed geotechnical engineer in compliance with the CBC prepared as part of a formal geotechnical investigation.

Impact 3.6-3 Would the project directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving:

Seismic related ground failure, including liquefaction?

As previously discussed above, four conditions are generally required for liquefaction to occur: (1) the soil must be saturated (relatively shallow groundwater); (2) the soil must be loosely packed (low to medium relative density); (3) the soil must be relatively cohesionless (not clayey); and (4) ground shaking of sufficient intensity must occur to function as a trigger of mechanism.

As groundwater in the site vicinity is expected to be approximately greater than 49 feet below the ground surface, the project site does not have relatively shallow groundwater. At the project site, near surface sandy soil consisted of variable amounts of silt and clay and were dry to the maximum depth of exploration. Clay with variable amounts of sand below the near surface sand was low in plasticity, dry to moist, and very stiff to hard in consistency. As the near surface soil is not loosely packed and consists of clay, there is low potential for liquefaction related ground failure. In addition, the project site is not located within a current, mapped California Liquefaction Hazard Zone. Based on these considerations, a less than significant impact has been identified related to liquefaction.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.6-4 Would the project directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving:

Landslides?

The project site has a topographic gradient of less than two percent and is relatively flat. It is not anticipated that the project site will have any permanent slopes higher than five feet. Therefore, due to the existing topography and the proposed grading, landslides are not considered a potential hazard for the project including off-site properties, and no impact would occur.

Mitigation Measure(s)

No mitigation measures required.

Impact 3.6-5 Would the project result in substantial soil erosion or the loss of topsoil?

During the site grading and construction phases, large areas of unvegetated soil would be exposed to erosive forces by water for extended periods of time due to ICAPCD dust suppression requirements. Unvegetated soils are much more likely to erode from precipitation than vegetated areas because plants act to disperse, infiltrate, and retain water. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and grading activities could result in increased erosion and sedimentation to surface waters. The predominately coarse-grained soils underlying the site are potentially susceptible to erosion or the loss of topsoil due to surface water flows. If precautions are not taken to contain contaminants, construction-related erosion impacts are considered significant.

As provided in Mitigation Measure GEO-1, during final engineering for the project, a design-level geotechnical study would identify appropriate measures for the project related to soil erosion. In addition, as part of Mitigation Measure HYD-1 provided in Section 3.8 Hydrology/Water Quality, potential impacts from erosion during construction activities would be reduced to a less than significant level with the preparation of an SWPPP for sediment and erosion control and implementation of BMPs to reduce erosion from the construction site. Therefore, with implementation of Mitigation Measure GEO-1 and Mitigation Measure HYD-1 identified in Section 3.8 Hydrology/Water Quality, impacts from construction-related erosion would be reduced to a less than significant level.

The project is not expected to result in substantial soil erosion or the loss of topsoil over the long term. Further, the project applicant would be required to implement on-site erosion control measures in accordance with County standards, which require the preparation, review, and approval of a grading plan by the County Engineer. Therefore, with implementation of Mitigation Measures GEO-1 and HYD-1, impacts would be reduced to a less than significant level.

Mitigation Measure(s)

No additional mitigation measures beyond Mitigation Measure GEO-1 and Mitigation Measure HYD-1 are required.

Significance after Mitigation

With implementation of Mitigation Measure GEO-1 and Mitigation Measure HYD-1 in Section 3.8 Hydrology/Water Quality, potential impacts from erosion during construction activities would be reduced to a less than significant level with the preparation of a SWPPP and implementation of BMPs to reduce erosion from the construction site.

Impact 3.6-6 Would the project be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Lateral spreading generally occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or “free” face such as an open body of water, channel, or excavation. This movement is generally due to failure along a weak plane, and may often be associated with liquefaction. As cracks develop within the weakened material, blocks of soil displace laterally toward the open face. Cracking and lateral movement may gradually propagate away from the face as blocks continue to break free.

Due to the low potential for liquefaction, the depth of groundwater, and the fact that the project site is not located near free faces or bodies of water, the potential for lateral spreading is considered low (Appendix I of this EIR). This is considered a less than significant impact.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.6-7 Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

According to the *CEQA Level Geotechnical Study* prepared for the proposed project, the near-surface soils encountered during the preliminary geotechnical investigation have a low expansion potential (Appendix I of this EIR). Therefore, the proposed project would not create a substantial direct or indirect risk to life or property as a result of expansive soils. This is considered a less than significant impact.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.6-8 Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?

The proposed project would not require an operations and maintenance building. The proposed solar facility would be remotely operated, controlled and monitored and with no requirement for daily on-site employees. Therefore, no septic or other wastewater disposal systems would be required for the project and no impact would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.6-9 Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The project site is generally underlain by Quaternary Lake Deposits. Sediments from this formation have yielded fossilized remains of continental vertebrates, invertebrates, and plants at numerous previously recorded fossil sites in the Imperial Valley. Therefore, the paleontological sensitivity of these formations within the project site is considered to be high. However these units exist at depths that exceed the proposed project construction activities (i.e., sensitive layers exist at 30 feet and deeper). Therefore, the possibility of encountering paleontological resources during construction is low. Mitigation Measure GEO-2 would ensure that the potential impacts on paleontological resources do not rise to the level of significance pursuant to CEQA.

Mitigation Measure(s)

GEO-2 **Paleontological Resources.** In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found

within the project site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.

Significance after Mitigation

Implementation of Mitigation Measure GEO-2 would ensure that the potential impacts on paleontological resources do not rise to the level of significance pursuant to CEQA. In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find.

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiberoptic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No grading would be required. No new transmission structures would be required to install the fiberoptic cable. The proposed fiberoptic cable would result in no significant geology and soil impacts. Furthermore, because no grading would be required, paleontological resources would not be directly or indirectly destroyed during installation of the fiberoptic cable.

3.6.4 Decommissioning/Restoration and Residual Impacts

Decommissioning/Restoration

Decommissioning and restoration of the project site at the end of its use as a solar facility would involve the removal of structures and restoration to prior (pre-solar project) conditions. No geologic or soil impacts associated with the restoration activities would be anticipated, and, therefore, no impact is identified.

No impact is anticipated from restoration activities as the ground disturbance and associated impacts on paleontological resources will have occurred during the construction phase of the project.

Residual

With implementation of Mitigation Measure GEO-1 and Mitigation Measure HYD-1, impacts related to strong seismic ground-shaking and construction-related erosion would be reduced to less than significant levels. Implementation of Mitigation Measure GEO-2 would ensure that the potential impacts on paleontological resources do not rise to the level of significance pursuant to CEQA. The project would not result in residual significant and unmitigable impacts related to geology and soil resources.

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3.7 Greenhouse Gas Emissions

This section includes an overview of existing GHG emissions within the project area and identifies applicable federal, state, and local policies related to global climate change. The impact assessment provides an evaluation of potential adverse effects with regards to GHG emissions based on criteria derived from CEQA Guidelines in conjunction with actions proposed in Chapter 2, Project Description. Stantec prepared an Air Quality/Greenhouse Gas Technical Study that assesses the climate change impacts of the Wister Solar Energy Facility Project. This report is included in Appendix D of this EIR.

3.7.1 Existing Conditions

Greenhouse Gases

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to GHGs, particularly those generated from the production and use of fossil fuels.

GHGs refer to atmospheric gases that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapor, among others. While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy.

The dominant GHG emitted is CO_2, mostly from fossil fuel combustion. GHGs differ in how much heat each can trap in the atmosphere (global warming potential [GWP]). When accounting for GHGs, all types of GHG emissions are expressed in terms of CO_2e and are typically quantified in metric tons (MT) or million metric tons. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is expressed relative to CO_2 over a specified time period. The 2007 IPCC *Fourth Assessment Report* calculates the GWP of CH_4 as 25 and the GWP of N_2O as 298, over a 100-year time horizon (Appendix D of this EIR).

State law defines GHGs as any of the following compounds CO_2, CH_4, N_2O, hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulfur hexafluoride (SF_6) (California HSC Section 38505(g)).

CO_2 is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO_2 is produced when an organic carbon compound, such as wood, or fossilized organic matter, such as coal, oil, or natural gas, is burned in the presence of oxygen. CO_2 is removed from the atmosphere by CO_2 "sinks", such as absorption by seawater and photosynthesis by ocean dwelling plankton and land plants, including forests and grasslands; however, seawater is also a source of CO_2 to the atmosphere, along with land plants, animals, and soils, when CO_2 is released during respiration. Whereas the natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood.

CH_4 is a colorless, odorless non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH_4 is combustible, and it is the main constituent of natural gas-a fossil fuel. CH_4 is released when organic matter decomposes in low oxygen environments. Natural sources include wetlands, swamps and marshes, termites, and oceans. Human sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals, such as cattle, rice paddies and the buried waste in landfills. Over the last 50 years, human activities, such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

N_2O is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas", and sometimes used as an anesthetic. N_2O is naturally produced in the oceans and in rainforests. Man-made sources of N_2O include the use of fertilizers in agriculture, nylon and nitric acid production, cars with catalytic converters and the burning of organic matter. Concentrations of N_2O also began to rise at the beginning of the industrial revolution.

Chlorofluorocarbons (CFC) are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically un-reactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Because of the discovery that they are able to destroy stratospheric ozone (O_3), an ongoing global effort to halt their production was undertaken and has been extremely successful, so much so that levels of the major CFCs are now remaining steady or declining; however, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

HFCs are synthesized chemicals that are used as a substitute for CFCs. Out of all of the GHGs; HFCs are one of three groups with the highest GWP. HFCs are synthesized for applications, such as automobile air conditioners and refrigerants.

PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

SF_6 is an extremely potent GHG. SF_6 is very persistent, with an atmospheric lifetime of more than 1,000 years. Thus, a relatively small amount of SF_6 can have a significant long-term impact on global climate change. SF_6 is human-made, and the primary user of SF_6 is the electric power industry. Because of its inertness and dielectric properties, it is the industry's preferred gas for electrical insulation, current interruption, and arc quenching (to prevent fires) in the transmission and distribution of electricity. SF_6 is used extensively in high voltage circuit breakers and switchgear, and in the magnesium metal casting industry.

Statewide Greenhouse Gas Emissions Inventory

The State of California GHG Inventory performed by the CARB, compiled statewide anthropogenic GHG emissions and sinks. It includes estimates for CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs. The current inventory covers the years 2000 to 2017 and is summarized in Table 3.7-1. Data sources used to calculate this GHG inventory include California and Federal agencies, international organizations, and industry associations. The calculation methodologies are consistent with guidance from the IPCC. The 2000 emissions level is the sum total of sources from all sectors and categories in the inventory. The inventory is divided into seven broad sectors and categories in the inventory. These sectors include agriculture, commercial and residential, electric power, industrial, transportation, recycling and waste, and high GWP gases.

Table 3.7-1. California Greenhouse Gas Emissions Inventory 2000 to 2017

Sector	Total 2000 Emissions ($MMTCO_2e$)	Total 2017 Emissions ($MMTCO_2e$)
Agriculture	30.97	32.42
Commercial and Residential	43.96	41.14
Electric Power	104.84	62.39
Industrial	97.41	89.40
Transportation	180.33	169.86
Recycling and Waste	7.35	8.89
High GWP Gases	6.28	19.99

Source: CARB 2019
Notes:
GWP=global warming potential; $MMTCO_2e$=million metric tons of CO_2 equivalent

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California.

The California Natural Resources Agency's Fourth Climate Change Assessment (Fourth Assessment) produced updated climate projections that provide state-of-the-art understanding of different possible climate futures for California. The science is highly certain that California (and the world) will continue to warm and experience greater impacts from climate change in the future. While the IPCC and the National Climate Assessment have released descriptions of scientific consensus on climate change for the world and the United States, respectively, the Fourth Assessment summarizes the current understanding of climate impacts and adaptation options in California (California Natural Resources Agency 2018). Projected changes in California include:

- **Temperatures:** If GHG emissions continue at current rates then California will experience average daily high temperatures that are warmer than the historical average by:
  - 2.7 Fahrenheit (°F) from 2006 to 2039
  - 5.8°F from 2040 to 2069
  - 8.8°F from 2070 to 2100
- **Wildfire:** One Fourth Assessment model suggests large wildfires (greater than 25,000 acres) could become 50 percent more frequent by the end of century if emissions are not reduced. The model produces more years with extremely high areas burned, even compared to the historically destructive wildfires of 2017 and 2018. By the end of the century, California could experience wildfires that burn up to a maximum of 178 percent more acres per year than current averages.
- **Sea-Level Rise:** If emissions continue at current rates, the Fourth Assessment model results indicate that total sea-level rise by 2100 is expected to be 54 inches, almost twice the rise that would occur if GHG emissions are lowered to reduce risk.
- **Snowpack:** By 2050, the average water supply from snowpack is projected to decline to 2/3 from historical levels. If emissions reductions do not occur, water from snowpack could fall to less than 1/3 of historical levels by 2100.
- **Agriculture:** Agricultural production could face climate-related water shortages of up to 16 percent in certain regions. Regardless of whether California receives more or less annual precipitation in the future, the state will be dryer because hotter conditions will increase the loss of soil moisture (California Natural Resources Agency 2018).

3.7.2 Regulatory Setting

This section identifies and summarizes federal, state, and local laws, policies, and regulations that are applicable to the project.

Federal

At the federal level, there is currently no overarching law related to climate change or the reduction of GHGs. The EPA is developing regulations under the CAA to be adopted in the near future, pursuant to the EPA's authority under the CAA. Foremost amongst recent developments have been the settlement agreements between the EPA, several states, and nongovernmental organizations (NGO) to address GHG emissions from electric generating units and refineries; the U.S. Supreme Court's decision in Massachusetts v. EPA; and EPA's "Endangerment Finding," "Cause or Contribute Finding," and "Mandatory Reporting Rule." On September 20, 2013, the EPA issued a proposal to limit carbon

pollution from new power plants. The EPA is proposing to set separate standards for natural gas-fired turbines and coal-fired units.

Although periodically debated in Congress, no federal legislation concerning GHG limitations has yet been adopted. In Coalition for Responsible Regulation, Inc., et al. v. EPA, the United States Court of Appeals upheld the EPA's authority to regulate GHG emissions under CAA. Furthermore, under the authority of the CAA, the EPA is beginning to regulate GHG emissions starting with large stationary sources. In 2010, the EPA set GHG thresholds to define when permits under the New Source Review Prevention of Significant Deterioration (PSD) standard and Title V Operating Permit programs are required for new and existing industrial facilities. In 2012, EPA proposed a carbon pollution standard for new power plants.

Corporate Average Fuel Standards

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. EPA jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.

Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by U.S. EPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type (U.S. EPA 2011). U.S. EPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (U.S. EPA 2016).

State

Executive Order S-3-05 – Statewide Greenhouse Gas Emissions Targets

On June 1, 2005, the Governor issued EO S-3-05 which set the following GHG mission reduction targets:

- By 2020, reduce GHG emissions to 1990 levels
- By 2050, reduce GHG emissions to 80 percent below 1990 levels

This EO directed the secretary of the California EPA to oversee the efforts made to reach these targets, and to prepare biannual biennial reports on the progress made toward meeting the targets and on the impacts on California related to global warming. The first such Climate Action Team Assessment Report was produced in March 2006 and has been updated every two years thereafter. This goal was further reinforced with the passage of AB 32 in 2006 and SB 32 in 2016.

Executive Order S-01-07

This order, signed by Governor Schwarzenegger, sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. CARB re-adopted the LCFS regulation in September 2015, and

the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Senate Bill 32

Chapter 249 of the bill (September 2016) codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030. SB 32 provides another intermediate target between the 2020 and 2050 targets set in EO S-3-05.

Assembly Bill 32 – California Global Warming Solutions Act

In 2006, California passed the California Global Warming Solutions Act of 2006, also known as AB 32, which codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that CARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (HSC Section 38551(b)). The law requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. The Scoping Plan was prepared and approved on December11, 2008 and was later updated in May 2014. The update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals (to the level of 427 million MT of CO_2e) defined in the original Scoping Plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use. In 2005, the governor issued EO S-3-05, establishing statewide GHG emissions reduction.

Under the "business as usual" (BAU) scenario established in 2008, statewide emissions were increasing at a rate of approximately 1 percent per year as noted below. It was estimated that the 2020 estimated BAU of 596 million $MTCO_2e$ would have required a 28 percent reduction to reach the 1990 level of 427 million $MTCO_2e$.

Executive Order S-01-7

This EO, signed by former Governor Schwarzenegger on January 18, 2007, directs that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by the year 2020. It orders that a LCFS for transportation fuels be established for California and directs the CARB to determine whether a LCFS can be adopted as a discrete early action measure pursuant to AB 32. CARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Executive Order B-30-15

On April 20, 2015, former Governor Edmund G. Brown Jr. signed EO B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's EO aligns California's GHG reduction targets with those of leading international governments, such as the 28-nation European Union which adopted the same target in October 2014.

California is on track to meet or exceed its legislated target of reducing GHG emissions to 1990 levels by 2020, as established in the AB 32. California's new emission reduction target of 40 percent below

1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2 degrees Celsius, the warming threshold at which there will likely be major climate disruptions, such as super droughts and rising sea levels. The targets stated in EO B-30-15 have not been adopted by the state legislature.

Renewable Portfolio Standard

The RPS promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Originally adopted in 2002 with a goal to achieve a 20 percent renewable energy mix by 2020 (referred to as the "initial RPS"), the goals have been accelerated and increased by EOs S-14-08, S-21-09, SB 350, and SB 100.

The purpose of the RPS upon full implementation is to provide 33 percent of the state's electricity needs through renewable energy sources. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.

The RPS is included in CARB's Scoping Plan list of GHG reduction measures to reduce energy sector emissions. It is designed to accelerate the transformation of the electricity sector through such means as investment in the energy transmission infrastructure and systems to allow integration of large quantities of intermittent wind and solar generation. Increased use of renewables would decrease California's reliance on fossil fuels, thus reducing emissions of GHGs from the electricity sector.

Executive Order S-14-08

EO S-14-08 was established by California Governor Schwarzenegger in November 2008. The order establishes a RPS for all retail sellers of electricity. The specifics of this EO include the following:

- Requires retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020;
- Requires various state agencies to streamline processes for the approval of new renewable energy facilities and determine priority renewable energy zones; and
- Establishes the requirement for the creation/adoption of the Desert Renewable Energy Conservation Plan (DRECP) process for the Mojave and Colorado Desert regions.

Senate Bill X1-2

On April 12, 2011, California Governor Jerry Brown signed SB X1-2. This bill supersedes the 33 percent by the 2020 RPS, created by EO S-14-08 that Governor Schwarzenegger previously signed. The RPS required that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. The SB X1-2 extends the application of the RPS to all electric retailers in the State.

Senate Bill 350

The RPS program was further accelerated in 2015 with SB 350 which mandated a 50 percent RPS by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires 65 percent of RPS procurement to be derived from long-term contracts of 10 or more years.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS goals established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly-owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers must also have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. California must procure 100 percent of its energy from carbon free energy sources by the end of 2045.

Climate Change Scoping Plan

The Scoping Plan released by CARB in 2008 outlined the state's strategy to achieve the AB 32 goals. This Scoping Plan, developed by CARB in coordination with the Climate Action Team, proposed a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health. It was adopted by CARB at its meeting in December 2008. According to the Scoping Plan, the 2020 target of 427 million $MTCO_2e$ requires the reduction of 169 million $MTCO_2e$, or approximately 28.3 percent, from the state's projected 2020 BAU emissions level of 596 million $MTCO_2e$.

However, in August 2011, the Scoping Plan was re-approved by the Board and includes the Final Supplement to the Scoping Plan Functional Equivalent Document. This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light of the current economic forecasts. Considering the updated 2020 BAU estimate of 507 million $MTCO_2e$, only a 16 percent reduction below the estimated new BAU levels would be necessary to return to 1990 levels by 2020. The 2011 Scoping Plan expands the list of nine Early Action Measures into a list of 39 Recommended Actions.

In May 2014, CARB developed; in collaboration with the Climate Action Team, the *First Update to California's Climate Change Scoping Plan* (Update), which shows that California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32. In accordance with the United Nations Framework Convention on Climate Change (UNFCCC), CARB is beginning to transition to the use of the AR4's 100-year GWPs in its climate change programs. CARB has recalculated the 1990 GHG emissions level with the AR4 GWPs to be 431 million $MTCO_2e$; therefore, the 2020 GHG emissions limit established in response to AB 32 is now slightly higher than the 427 million $MTCO_2e$ in the initial Scoping Plan.

CARB adopted the latest update to the Climate Change Scoping Plan in December 2017. The 2017 Scoping Plan is guided by the EO B-30-15 GHG reduction target of 40 percent below 1990 levels by 2030. The 2017 Scoping Plan builds upon the framework established by the initial Scoping Plan and the First Update, while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Plan includes policies to require direct GHG reductions at some of the State's largest stationary sources and mobile sources. These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and-Trade Program, which constrains and reduces emissions at covered sources (CARB 2017).

The majority of the Scoping Plan's GHG reduction strategies are directed at the two sectors with the largest GHG emissions contributions: transportation and electricity generation. The GHG reduction strategies for these sectors involve statutory mandates affecting vehicle or fuel manufacture, public transit, and public utilities. The reduction strategies employed by CARB are designed to reduce emissions from existing sources as well as future sources.

Senate Bill 97

SB 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs Office of Planning and Research (OPR) to develop draft CEQA Guidelines "for the mitigation of GHG emissions or the effects of GHG emissions" by July 1, 2009, and directs the Resources Agency to certify and adopt the CEQA Guidelines by January 1, 2010.

On December 30, 2009, the Natural Resources Agency adopted amendments to the CEQA Guidelines in the CCR. The amendments went into effect on March 18, 2010, and are summarized below:

- Climate action plans and other GHG reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the GHG emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. In addition, consideration of several qualitative factors may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. The Guidelines do not set or dictate specific thresholds of significance.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of GHG emissions in Appendix G of the CEQA Guidelines.
- The Guidelines are clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- The Guidelines promote the advantages of analyzing GHG impacts on an institutional, programmatic level, and, therefore, approve tiering of environmental analyses and highlights some benefits of such an approach.
- EIRs must specifically consider a project's energy use and energy efficiency potential, pursuant to Appendix F of the CEQA Guidelines.

Senate Bill 375 – Regional Emissions Targets

SB 375 requires that regions within the state which have a metropolitan planning organization (MPO) must adopt a sustainable communities' strategy as part of their RTPs. The strategy must be designed to achieve certain goals for the reduction of GHG emissions. The bill finds that "it will be necessary to achieve significant additional GHG reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 provides that new CEQA provisions be enacted to encourage

developers to submit applications and local governments to make land use decisions that will help the state achieve its goals under AB 32," and that "current planning models and analytical techniques used for making transportation infrastructure decisions and for air quality planning should be able to assess the effects of policy choices, such as residential development patterns, expanded transit service and accessibility, the walkability of communities, and the use of economic incentives and disincentives."

California Code of Regulations Title 24, Part 6

Although not originally intended to reduce GHG emissions, CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions. Therefore, increased energy efficiency results in decreased GHG emissions.

California Green Building Code

The California Green Building Standards Code is commonly referred to as CALGreen and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen 2019 standards became effective on January 1, 2020. The 2019 CALGreen Code has mandatory Green Building provisions for all new residential buildings that are three stories or fewer (including hotels and motels) and all new non-residential buildings of any size that are not additions to existing buildings.

Regional

Southern California Association of Governments - 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy

The Southern California Association of Governments (SCAG) is the designated MPO for Los Angeles, Ventura, Orange, San Bernardino, Riverside, and Imperial Counties. CEQA requires that regional agencies like SCAG review projects and plans throughout its jurisdiction. SCAG, as the region's "Clearinghouse," collects information on projects of varying size and scope to provide a central point to monitor regional activity. SCAG has the responsibility of reviewing dozens of projects, plans, and programs every month. Projects and plans that are regionally significant must demonstrate to SCAG their consistency with a range of adopted regional plans and policies.

On April 7, 2016, SCAG adopted the 2016-2040 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS). The RTP/SCS includes a strong commitment to reduce emissions from transportation sources to comply with SB 375, improve public health, and meet the National Ambient Air Quality Standards (NAAQS) as set forth by the federal CAA. The following SCAG goal is applicable to the project:

- Protect the environment and health of our residents by improving air quality and encouraging active transportation.

As a solar generation facility, the proposed project would improve air quality by reducing the use of fossil fuels in energy production. The proposed project's renewable electricity generation would create an indirect emissions reduction of GHGs. Operation of the proposed project would likely reduce or "offset" electricity-related emissions on the state-wide utility grid, which includes energy generated by traditional sources, such as natural gas and coal-fired plants. Therefore, the proposed project would be consistent with this SCAG goal.

Local

County of Imperial

Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the CEQA Guidelines to 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 climate change impacts. Formal CEQA thresholds for lead agencies must always be established through a public hearing process. Imperial County has not established formal quantitative or qualitative thresholds through a public rulemaking process, but CEQA permits the lead agency to establish a project-specific threshold of significance if backed by substantial evidence, until such time as a formal threshold is approved.

3.7.3 Impacts and Mitigation Measures

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to GHG emissions are considered significant if any of the following occur:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs

As discussed in Section 15064.4 of the CEQA Guidelines, the determination of the significance of GHG emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

1. Quantify greenhouse gas emissions resulting from a project; and/or
2. Rely on a qualitative analysis or performance based standards.

A lead agency should consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

South Coast Air Quality Management District's Interim Thresholds

The ICAPCD has not adopted thresholds of significance for project's GHG emissions. However, the Air Quality/Greenhouse Gas Technical Study (Appendix D of this EIR) proposes to use the South Coast Air Quality Management District's (SCAQMD) "Tier 3" quantitative thresholds for residential and commercial projects. The SCAQMD proposes that if a project generates GHG emissions below 3,000 MTs of $MTCO_2e$, it could be concluded that the project's GHG contribution is not cumulatively considerable and is, therefore, considered less than significant under CEQA. If the project generates GHG emissions above the threshold, the analysis must identify mitigation measures to reduce GHG emissions.

Methodology

The project-related direct and indirect emissions of GHGs were estimated using the similar methods for quantification of criteria air pollutants, as described in Section 3.3 Air Quality. Emissions were estimated using existing conditions, project construction and operations information, as well as a combination of emission factors from various sources.

In addition to the direct and indirect emissions created from project construction and operation, the project's renewable electricity generation would create an indirect emissions reduction of GHGs. Operation of the proposed project would likely reduce or "offset" electricity-related emissions on the state-wide utility grid, which includes energy generated by traditional sources, such as natural gas and coal-fired plants. These emissions are often referred to as "displaced" or "avoided" emissions.

Displaced emissions from electricity production were modeled based on an estimated electricity generation rate of 112,910 megawatt hours (MWh)/year (for 25 megawatt facility), provided by the project proponent. Emission factors were derived from the U.S. EPA's *Emissions Generation Resource Integration Database* (2016) as well as CalEEMod for Imperial County. The lower estimated displaced emissions were used in this analysis. Emissions calculations and assumptions are included in Appendix D of this EIR.

Impact Analysis – Solar Energy Facility and Gen-Tie Line

Impact 3.7-1 Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction and operation of the project would result in a relatively small amount of GHG emissions. The project would generate GHG emissions during construction and routine operational activities at the project site. During construction, GHG emissions would be generated from the operation of off-road equipment, haul-truck trips, and on-road worker vehicle trips. Once operational, GHG emissions would be limited to vehicle trips associated with periodic routine maintenance and monitoring activities at the project site.

Total GHG emissions from all phases of construction activities were amortized over the estimated 20-year life of the project. As shown in Table 3.7-2, the yearly contribution to GHG from the construction of the project would be 18.8 $MTCO_2e$ per year. Therefore, the construction emissions are less than the SCAQMD's screening threshold of 3,000 $MTCO_2e$ per year.

Once the project is constructed and operational, the proposed project would have no major stationary emission sources and would require minimal vehicular trips. Therefore, operation of the proposed solar facility would result in substantially lower emissions than project construction.

As shown in Table 3.7-2, the yearly contribution to GHG from operation of the project would be 9.0 $MTCO_2e$ per year. Therefore, the proposed project's operational emissions are less than the SCAQMD's screening threshold of 3,000 $MTCO_2e$ per year.

In addition, the proposed project would offset GHG emissions through renewable energy generation. As shown in Table 3.7-2, once operational, the proposed project would displace approximately 65,165 $MTCO_2e$ per year. The proposed project's annual indirect GHG emissions from the displacement of fossil fuel fired electricity generation is significantly higher than the project's annualized direct and indirect emissions sources. Implementation of the proposed project would result in a less than significant impact associated with the generation of GHG emissions.

Table 3.7-2. Greenhouse Gas Emissions Summary

Emissions Source	GHG Emissions ($MTCO_2e$/year)
Construction Emissions – Amortized (20 years)*	18.8
Operational Emissions – Facility site	9.0
Displaced Emissions (from Project Operation)	-65,165
Total Annual Emissions	-65,136
Significance Threshold**	3,000
Exceed Threshold?	No

Source: Appendix D of this EIR

Notes:

Includes direct and indirect emissions of project site operation and maintenance, not including the indirect displaced GHG emissions.

Estimation of emissions avoided due to displacement of fossil fuel powered electricity generation.

The CalEEMod carbon intensity factor for Imperial Irrigation District is used to estimate displaced GHG emissions.

* *Total construction emissions amortized over project life of 20 years.*

** *In the absence of ICAPCD-adopted threshold for GHG emissions, the SCAQMD threshold of 3,000 MT/year for commercial projects is used.*

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.7-2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

As discussed in Impact 3.7-1, the proposed project would generate a relatively small amount of GHG emissions. The proposed project is consistent with the AB 32 Scoping Plan strategies to increase the total amount of renewable energy sources consistent with the State's RPS requirements. The project would help the state meet this goal by generating up to 20 MW of power to California's current renewable portfolio. In addition, the project would not conflict with CARB's emission reduction strategies in the Scoping Plan. As the project would not exceed applicable GHG screening thresholds and would provide a GHG emissions benefit, the project would be consistent with the Scoping Plan's goal of achieving cost-effective emissions reductions while accelerating the transition to a low-carbon economy.

Neither the County of Imperial or ICAPCD have any specific plans, policies, nor regulations adopted for reducing the emissions of GHGs; however, since the long-term operational GHG emissions are minimal and the construction emissions are short-term, the project would not conflict with any applicable plan, policy, or regulation adopted for reducing the emissions of GHGs. Implementation of the proposed project would result in a less than significant impact associated with the potential to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHG.

Mitigation Measure(s)

No mitigation measures are required.

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No new transmission structures would be required to install the fiberoptic cable.

The installation of the fiberoptic cable would result in GHG emissions from the operation of construction equipment and vehicle travel on paved and unpaved surfaces. Once operational, GHG emissions would be limited to vehicle trips associated with routine maintenance and monitoring activities at the project site. As shown in Table 3.7-2, the yearly contribution to GHG from the construction of the solar energy facility and gen-tie line would be 18.8 $MTCO_2e$ per year. Therefore, the construction emissions are less than the SCAQMD's screening threshold of 3,000 $MTCO_2e$ per year. The installation of the fiberoptic cable would require substantially less construction equipment and shorter duration compared to the construction of the solar energy facility and gen-tie line. Based on this consideration, the installation of the fiberoptic cable would result in GHG emissions below allowable thresholds. This is considered a less than significant impact.

3.7.4 Decommissioning/Restoration and Residual Impacts

Decommissioning/Restoration

Similar to construction activities, decommissioning and restoration would result in CO_2e emissions below allowable thresholds. Construction activities during decommissioning and restoration would adhere to Mitigation Measures AQ-1 and AQ-2 outlined in Section 3.3, Air Quality of this EIR, further reducing GHG emissions. Therefore, the impact is considered less than significant.

Residual

The proposed project's GHG emissions would result in a less than significant impact. Project operation, subject to the provision of a CUP, would generally be consistent with statewide GHG emission goals and policies including AB 32. Project consistency with applicable plans, policies, and regulations adopted to reduce GHG emissions would ensure that the project would not result in any residual significant and unavoidable impacts with regards to global climate change.

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3.8 Hydrology/Water Quality

This section provides a description of existing water resources within the project area and pertinent local, state, and federal plans and policies. Each subsection includes descriptions of existing hydrology/drainage, existing flooding hazards, and the environmental impacts on hydrology and water quality resulting from implementation of the proposed project, and mitigation measures where appropriate. The impact assessment provides an evaluation of potential adverse effects to water quality based on criteria derived from CEQA Guidelines in conjunction with actions proposed in Chapter 2, Project Description.

Information for this section is summarized from the *Water Quality Management Plan* and *Hydrological Evaluation* prepared by Stantec. These reports are included in Appendix J and K of this EIR, respectively.

3.8.1 Existing Conditions

The project site is located in the Imperial Valley Planning Area of the Colorado River Basin. The Colorado River Basin Region covers approximately 13 million acres (20,000 square miles) in the southeastern portion of California. It includes all of Imperial County and portions of San Bernardino, Riverside, and San Diego Counties. The Colorado River Basin Region is divided into seven major planning areas on the basis of different economic and hydrologic characteristics (California RWQCB 2019).

The project site is contained within the Brawley Hydrologic Area in the Imperial Hydrologic Unit (HU 723.10). The Imperial Valley is characterized as a closed basin and, therefore, all runoff generated within the watershed discharges into the Salton Sea (Appendix J of this EIR).

The project area is characterized by a typical desert climate with dry, warm winters, and hot, dry summers. Most of the rainfall occurs in conjunction with monsoonal conditions between May and September, with an average annual rainfall of less than 3 inches for the project area. The 10-year, 24-hour estimated precipitation amount is 1.87 inches; and the 100-year, 24-hour estimated precipitation is 3.70 inches (Appendix J of this EIR).

Localized Drainage Conditions

The project site and the surrounding terrain is generally flat and slopes down in a southwest direction at approximately 1.5 percent. Currently, off-site storm water runoff runs through the project site. The upstream tributary storm drainage area extends approximately 0.85 miles northeast of the project to the existing Coachella Canal. The storm water runoff eventually drains into the East Highline Canal (Appendix J of this EIR).

Flooding

According to FEMA's FIRM (Map Number 06025C0425C) (FEMA 2008), the proposed solar energy facility, gen-tie line, and access roads located on the western portion of the project site are located in Zone X (unshaded). The FEMA Zone X (unshaded) designation is an area determined to be outside the 0.2 percent annual chance floodplain.

According to the FEMA FIRM (Map Number 06025C0450C) (FEMA 2008), the proposed eastern access road that would connect to Gas Line Road is located in a 100-year flood zone (Zone A).

Surface Water Quality

The surface waters of the Imperial Valley depend primarily on the inflow of irrigation water from the Colorado River via the All-American Canal. Excessive salinity concentrations have long been one of the major water quality problems of the Colorado River, a municipal and industrial water source to millions of people, and a source of irrigation water for approximately 700,000 acres of farmland. The heavy salt load in the Colorado River results from both natural and human activities. Land use and water resources are unequivocally linked. A variety of natural and human factors can affect the quality and use of streams, lakes, and rivers. Surface waters may be impacted from a variety of point and non-point discharges. Examples of point sources may include wastewater treatment plants, industrial discharges, or any other type of discharge from a specific location (commonly a large-diameter pipe) into a stream or water body. In contrast, non-point source pollutant sources are generally more diffuse in nature and connected to a cumulative contribution of multiple smaller sources. There are no comprehensive water quality monitoring stations located within in the project site, and water quality data are limited (Appendix J of this EIR).

Common non-point source contaminants within the project area may include, but are not limited to: sediment, nutrients (phosphorous and nitrogen), trace metals (e.g., lead, zinc, copper, nickel, iron, cadmium, and mercury), oil and grease, bacteria (e.g., coliform), viruses, pesticides and herbicides, organic matter, and solid debris/litter. Vehicles account for most of the heavy metals, fuel and fuel additives (e.g., benzene), motor oil, lubricants, coolants, rubber, battery acid, and other substances. Nutrients result from excessive fertilizing of agricultural areas, while pesticides and herbicides are widely used in agricultural fields and roadway shoulders for keeping right-of-way (ROW) areas clear of vegetation and pests. Additionally, the use of on-site septic systems for wastewater disposal can degrade shallow groundwater by contributing nitrate. All these substances are entrained by runoff during wet weather and discharged into local drain facilities and eventually into the Salton Sea (Appendix J of this EIR).

Based on the 305(b)/303(d) Integrated Report prepared by the Colorado River Basin RWQCB, the following water features within the Brawley Hydrologic Area includes the Imperial Valley Drains (Wistaria Drain and Greeson Wash), New River, and the Salton Sea (Appendix J of this EIR). Specific impairments listed for each of these water bodies (or Category 5) are identified below:

- Imperial Valley Drains: Impaired for chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan, PCBs, sedimentation/siltation; toxaphene, and selenium;
- New River: Impaired for chlordane, chlorpyrifos, copper, DDT, diazinon, dieldrin, Hexachlorobenzene, mercury, nutrients, organic enrichment/low dissolved oxygen, PCBs, pathogens, sediment, selenium, toxicity, toxaphene, trash, and zinc;
- Salton Sea: Impaired for arsenic, chlorpyrifos, DDT, enterococcus, nutrients, salinity, and selenium (Appendix J of this EIR).

In relation to the Imperial Valley Drains, the listings for DDT, dieldrin, and, endosulfan only apply to drains that are not responsible for draining the immediate project site (Appendix J of this EIR).

Groundwater Hydrology

The project site is located in the East Salton Sea Groundwater Basin (Basin 7-033). The basin occupies the northeastern margin of the Imperial Valley, including the East Mesa, and alluvial surficial deposits of the Chocolate Mountains. The basin covers 279,824 acres. Adjacent basins include

Chocolate Valley to the north, Arroyo Seco Valley to the east, Amos Valley to the southeast, and Imperial Valley to the south. No groundwater basin is defined in the footprint of the Salton Sea (Appendix K of this EIR).

Groundwater quality in the East Salton Sea Basin is generally reported as poor and not suitable for domestic, municipal, or agricultural purposes (Appendix K of this EIR).

3.8.2 Regulatory Setting

This section identifies and summarizes laws, policies, and regulations that are applicable to the project.

Federal

Clean Water Act

The U.S. EPA is the lead federal agency responsible for managing water quality. The CWA of 1972 is the primary federal law that governs and authorizes the U.S. EPA and the states to implement activities to control water quality. The various elements of the CWA that address water quality and that are applicable to the project are discussed below. Wetland protection elements administered by the USACE under Section 404 of the CWA, including permits for the discharge of dredged and/or fill material into waters of the United States, are discussed in Section 3.4, Biological Resources.

Under federal law, the U.S.EPA has published water quality regulations under Volume 40 of the CFR. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the U.S. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question; and (2) criteria that protect the designated uses. Section 304(a) requires the U.S.EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. The U.S. EPA is the federal agency with primary authority for implementing regulations adopted under the CWA. The U.S.EPA has delegated the State of California the authority to implement and oversee most of the programs authorized or adopted for CWA compliance through the Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act), described below.

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the U.S. must obtain a water quality certification from the SWRCB in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate.

CWA Section 402 establishes the National Pollution Discharge Elimination System (NPDES) permit program to control point source discharges from industrial, municipal, and other facilities if their discharges go directly to surface waters. The 1987 amendments to the CWA created a new section of the CWA devoted to regulating storm water or nonpoint source discharges (Section 402[p]). The U.S.EPA has granted California primacy in administering and enforcing the provisions of the CWA and the NPDES program through the SWRCB. The SWRCB is responsible for issuing both general and individual permits for discharges from certain activities. At the local and regional levels, general and individual permits are administered by RWQCBs.

Clean Water Act Section 303(d) Impaired Waters List

CWA Section 303(d) requires states to develop lists of water bodies that will not attain water quality standards after implementation of minimum required levels of treatment by point-source dischargers.

Section 303(d) requires states to develop a total maximum daily load (TMDL) for each of the listed pollutants and water bodies. A TMDL is the amount of loading that the water body can receive and still be in compliance with applicable water quality objectives and applied beneficial uses. TMDLs can also act as a planning framework for reducing loadings of a specific pollutant from various sources to achieve compliance with water quality objectives. TMDLs prepared by the state must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. The TMDL must also include an analysis that shows links between loading reductions and the attainment of water quality objectives.

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRM) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection covered by the FIRM is established by FEMA, with the minimum level of flood protection for new development determined to be the 1-in-100 (0.01) annual exceedance probability) (i.e., the 100-year flood event).

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, also known as the California Water Code, is California's statutory authority for the protection of water quality. Under this act, the state must adopt water quality policies, plans, and objectives that protect the state's waters. The act sets forth the obligations of the State Water Resources Control Board (SWRCB) and RWQCBs pertaining to the adoption of Water Quality Control Plans and establishment of water quality objectives. Unlike the CWA, which regulates only surface water, the Porter-Cologne Act regulates both surface water and groundwater.

Water Quality Control Plan for the Colorado River Basin

The Water Quality Control Plan for the Colorado River Basin (or Basin Plan) prepared by the Colorado River RWQCB (Region 7) identifies beneficial uses of surface waters within the Colorado River Basin region, establishes quantitative and qualitative water quality objectives for protection of beneficial uses, and establishes policies to guide the implementation of these water quality objectives.

Water bodies that have beneficial uses that may be affected by construction activity and post-construction activity include the Imperial Valley Drains (includes the Wistaria Drain and Greeson Wash), New River, and the Salton Sea. Table 3.8-1 identifies the designated beneficial uses established for the project site's receiving waters. The following are definitions of the applicable beneficial uses:

- Aquaculture (AQUA) – Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.
- Freshwater Replenishment (FRSH) – Uses of water for natural or artificial maintenance of surface water quantity or quality.

- Industrial Service Supply (IND) – Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
- Water Contact Recreation (REC I) – Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, and use of natural hot springs.
- Non-contact Water Recreation (REC II) – Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- Warm Freshwater Habitat (WARM) – Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- Wildlife Habitat (WILD) – Uses of water that support terrestrial ecosystems including, but not limited to, the preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- Preservation of Rare, Threatened, or Endangered Species (RARE) – Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

Table 3.8-1. Beneficial Uses of Receiving Waters

Beneficial Uses	Imperial Valley Drains	New River	Salton Sea
AQUA	--	--	X
FRSH	X	X	--
IND	--	P	P
REC I	X	X	X
REC II	X	X	X
WARM	X	X	X
WILD	X	X	X
RARE	X	X	X

Source: SWRCB 2019

AQUA=aquaculture; FRSH=freshwater replenishment; IND=industrial service supply; P=Potential Uses; RARE=Preservation of Rare, Threatened, or Endangered Species; REC 1= water contact recreation; REC II=non-contact water recreation; WARM=Warm Freshwater Habitat; WILD=Wildlife Habitat; X=existing beneficial uses

National Pollution Discharge Elimination System General Industrial and Construction Permits

The NPDES General Industrial Permit requirements apply to the discharge of stormwater associated with industrial sites. The permit requires implementation of management measures that will achieve the performance standard of the best available technology economically achievable and best conventional pollutant control technology. Under the statute, operators of new facilities must implement industrial BMPs in the projects' SWPPP and perform monitoring of stormwater discharges and unauthorized non–stormwater discharges.

Construction activities are regulated under the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit) which covers stormwater runoff requirements for projects where the total amount of ground disturbance during construction exceeds 1 acre. Coverage under a General Construction Permit requires the preparation of a SWPPP and submittal of a Notice of Intent (NOI) to comply with the General Construction Permit. The SWPPP includes a description of BMPs to minimize the discharge of pollutants from the sites during construction. Typical BMPs include temporary soil stabilization measures (e.g., mulching and seeding), storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or stormwater, and using filtering mechanisms at drop inlets to prevent contaminants from entering storm drains. Typical post-construction management practices include street sweeping and cleaning stormwater drain inlet structures. The NOI includes site-specific information and the certification of compliance with the terms of the General Construction Permit.

Local

County of Imperial General Plan

The Water Element and the Conservation and Open Space Element of the General Plan contain policies and programs, created to ensure water resources are preserved and protected. Table 3.8-2 identifies the General Plan policies and programs for water quality and flood hazards that are relevant to the project and summarizes the project's consistency with the General Plan. While this EIR analyzes the project's consistency with the General Plan pursuant to CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

Table 3.8-2. Project Consistency with Applicable General Plan Policies

General Plan Policies	Consistency with General Plan	Analysis
Conservation and Open Space Element		
Goal 6: The County will conserve, protect, and enhance water resources in the County.	Consistent	The proposed project would protect water quality during construction through compliance with Imperial County design and detention requirements and the NPDES General Construction Permit, as well as preparation and implementation of project-specific SWPPP, which will incorporate the requirements referenced in the State Regulatory Framework, design features, and BMPs.

Table 3.8-2. Project Consistency with Applicable General Plan Policies

General Plan Policies	Consistency with General Plan	Analysis
Objective 6.3: Protect and improve water quality and quantity for all water bodies in Imperial County.	Consistent	The proposed project would protect water quality during construction through compliance with the NPDES General Construction Permit, SWPPP, and BMPs. Implementation of Mitigation Measure HYD-2 would require the project to incorporate post-construction BMPs into the project's drainage plan. The proposed project will be designed to include site design, source control, and treatment control BMPs. The use of source control, site design, and treatment BMPs would result in a decrease potential for storm water pollution.
Program: Structural development normally shall be prohibited in the designated floodways. Only structures which comply with specific development standards should be permitted in the floodplain.	Consistent	The project does not contain a residential component nor would it place housing or other structures within a 100-year flood hazard area.
Water Element		
Policy: Adoption and implementation of ordinances, policies, and guidelines which assure the safety of County ground and surface waters from toxic or hazardous materials and/or wastes.	Consistent	The project would preserve ground and surface water quality from hazardous materials and wastes during construction, operation and decommissioning activities. The proposed project would protect water quality during construction through compliance with NPDES General Construction Permit, SWPPP, which will incorporate the requirements referenced in the State Regulatory Framework and BMPs. Implementation of Mitigation Measure HYD-2 would require the project to incorporate post-construction BMPs into the project's drainage plan. The proposed project will be designed to include site design, source control, and treatment control BMPs. The use of source control, site design, and treatment BMPs would result in a decrease potential for storm water pollution. It is anticipated that project decommissioning activities would be subject to similar, or more stringent ground and surface water regulations than those currently required.
Program: The County of Imperial shall make every reasonable effort to limit or preclude the contamination or degradation of all groundwater and surface water resources in the County.	Consistent	Mitigation measures will require that the applicant of the project prepare a site-specific drainage plan and water quality management plan to minimize adverse effects to local water resources.

Table 3.8-2. Project Consistency with Applicable General Plan Policies

General Plan Policies	Consistency with General Plan	Analysis
Program: All development proposals brought before the County of Imperial shall be reviewed for potential adverse effects on water quality and quantity and shall be required to implement appropriate mitigation measures for any significant impacts.	Consistent	See response for Water Element Policy above.

Source: County of Imperial 2016; County of Imperial 1997b

County of Imperial Land Use Ordinance, Title 9

The County's Ordinance Code provides specific direction for the protection of water resources. Applicable ordinance requirements are contained in Division 10, Building, Sewer and Grading Regulations, and summarized below.

Chapter 10 – Grading Regulations. Section 91010.02 of the Ordinance Code outlines conditions required for issuance of a Grading Permit. These specific conditions include:

1. If the proposed grading, excavation or earthwork construction is of irrigatable land, said grading will not cause said land to be unfit for agricultural use.
2. The depth of the grading, excavation or earthwork construction will not preclude the use of drain tiles in irrigated lands.
3. The grading, excavation or earthwork construction will not extend below the water table of the immediate area.
4. Where the transition between the grading plane and adjacent ground has a slope less than the ratio of 1.5 feet on the horizontal plane to 1 foot on the vertical plane, the plans and specifications will provide for adequate safety precautions.

Imperial County Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvement, Drainage and Grading Plans within Imperial County

Based on the guidance contained in the County's *Engineering Guidelines Design Guidelines Manual for the Preparation and Checking of Street Improvement, Drainage and Grading Plans within Imperial County* (2008), the following drainage requirements would be applicable to the project.

III A. GENERAL REQUIREMENTS

1. All drainage design and requirements are recommended to be in accordance with the IID "Draft" Hydrology Manual or other recognized source with approval by the County Engineer and based on full development of upstream tributary basins. Another source is the Caltrans I-D-F curves for the Imperial Valley.
3. Permanent drainage facilities and ROW, including access, shall be provided from development to point of satisfactory disposal.
4. Retention volume on retention or detention basins should have a total volume capacity for a three (3) inch minimum precipitation covering the entire site with no C reduction factors.

Volume can be considered by a combination of basin size and volume considered within parking and/or landscaping areas.

There is no guarantee that a detention basin outletting to an IID facility or other storm drain system will not back up should the facility be full and unable to accept the project runoff. This provides the safety factor from flooding by ensuring each development can handle a minimum 3-inch precipitation over the project site.

8. The developer shall submit a drainage study and specifications for improvements of all drainage easements, culverts, drainage structures, and drainage channels to the Department of Public Works for approval. Unless specifically waived herein, required plans and specifications shall provide a drainage system capable of handling and disposing of all surface waters originating within the subdivision and all surface waters that may flow onto the subdivision from adjacent lands. Said drainage system shall include any easements and structures required by the Department of Public Works or the affected Utility Agency to properly handle the drainage on-site and off-site. The report should detail any vegetation and trash/debris removal, as well as address any standing water.
9. Hydrology and hydraulic calculations for determining the storm system design shall be provided to the satisfaction of the Director, Department of Public Works. When appropriate, water surface profiles and adequate field survey cross-section data may also be required.
11. The County is implementing a storm water quality program as required by the SWRCB, which may modify or add to the requirements and guidelines presented elsewhere in this document. This can include ongoing monitoring of water quality of storm drain runoff, implementation of BMPs to reduce storm water quality impacts downstream or along adjacent properties. Attention is directed to the need to reduce any potential of vectors, mosquitoes, or standing water.
12. A Drainage Report is required for all developments in the County. It shall include a project description, project setting including discussions of existing and proposed conditions, any drainage issues related to the site, summary of the findings or conclusions, off-site hydrology, onsite hydrology, hydraulic calculations and a hydrology map.

Imperial Irrigation District

The IID is an irrigation district organized under the California Irrigation District Law, codified in Section 20500 et seq. of the California Water Code. Critical functions of IID include diversion and delivery of Colorado River water to the Imperial Valley, operation and maintenance of the drainage canals and facilities, including those in the project area, and generation and distribution of electricity. Several policy documents govern IID operations and are summarized below:

- The Law of the River and historical Colorado River decisions, agreements and contracts
- The Quantification Settlement Agreement and Transfer Agreements
- The Definite Plan, now referred to as the Systems Conservation Plan, which defines the rigorous agricultural water conservation practices being implemented by growers and IID to meet the Quantification Settlement Agreement commitments
- The Equitable Distribution Plan, which defines how IID will prevent overruns and stay within the cap on the Colorado River water rights

- Existing IID standards and guidelines for evaluation of new development and define IID's role as a responsible agency and wholesaler of water

Integrated Water Resources Management Plan

In relation to the project, IID maintains regulation over the drainage of water into their drains, including the design requirements of stormwater retention basins. IID requires that retention basins be sized to handle an entire rainfall event in case the IID system is at capacity. Additionally, IID requires that outlets to IID facilities be no larger than 12 inches in diameter and must contain a backflow prevention device (IID 2009).

3.8.3 Impacts and Mitigation Measures

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to hydrology/water quality are considered significant if any of the following occur:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade groundwater water quality
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - Result in substantial erosion or siltation on- or off-site
    - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite
    - 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
    - Impede or redirect flood flows
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

Methodology

The drainage design will be conducted in accordance with the County of Imperial's design criteria, which establishes that 100 percent of the 100-year storm (3 inches of rain) will be stored on-site and released into the IID drainage system using existing drainage connections.

Impact Analysis – Solar Energy Facility and Gen-Tie

Impact 3.8-1 Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade groundwater water quality?

Construction

Construction of the project includes site preparation, foundation construction, erection of major equipment and structures, installation of electrical systems, control systems, and startup/ testing. In addition, the construction of transmission lines, utility pole pads, conductors, and associated structures will be required.

During the construction phase, sedimentation and erosion can occur because of tracking from earthmoving equipment, erosion and subsequent runoff of soil, or improperly designed stockpiles. The utilization of proper erosion and sediment control BMPs is critical in preventing discharge to surface waters/drains. The project would employ proper SWPPP practices to minimize any discharges in order to meet the Best Available Technology/Best Conventional Technology standard set forth in the Construction General Permit.has the potential to affect surface water quality. Many different types of hazardous compounds will be used during the construction phase, with proper application, management, and containment being of high importance. Poorly managed construction materials can lead to the possibility for exposure of potential contaminants to precipitation. When this occurs, these visible and/or non-visible constituents become entrained in storm water runoff. If they are not intercepted or are left uncontrolled, the polluted runoff would otherwise freely sheet flow from the project to the IID Imperial Valley Drains and could result in the accumulation of these pollutants in the receiving waters. This is considered a potentially significant impact. With the implementation of Mitigation Measure HYD-1, impacts on surface water quality as attributable to the project would be reduced to a less than significant level. Prior to construction and grading activities, the project applicant is required to file an NOI with the SWRCB to comply with the General NPDES Construction Permit and prepare a SWPPP, which addresses the measures that would be included during construction or the project to minimize and control construction and post-construction runoff to the "maximum extent practicable." In addition, NPDES permits require the implementation of BMPs that achieve a level of pollution control to the maximum extent practical. With the implementation of Mitigation Measures HYD-1, impacts on surface water quality as attributable to the project would be reduced to a less than significant level through the inclusion of focused BMPs for the protection of surface water resources. Monitoring and contingency response measures would be included to verify compliance with water quality objectives for all surface waters crossed during construction. In addition, given that site decommissioning would result in similar activities as identified for construction, these impacts could also occur in the future during site restoration activities.

Operation

As runoff flows over developed surfaces, water can entrain a variety of potential pollutants including, but not limited to, oil and grease, pesticides, trace metals, and nutrients. These pollutants can become suspended in runoff and carried to receiving waters. These effects are commonly referred to as non-point source water quality impacts.

Long-term operation of the solar facility poses a limited threat to surface water quality after the completion of construction. The project would be subject to the County's Grading Regulations as specified in Section 91010.02 of the Ordinance Code. However, since the project site is located in unincorporated Imperial County and not subject to a Municipal Separate Storm Sewer System or

NPDES General Industrial Permit, there is no regulatory mechanism in place to address post-construction water quality concerns. Based on this consideration, the project has the potential to result in both direct and indirect water quality impacts that could be significant. Implementation of Mitigation Measure HYD-2 would require the project to incorporate post-construction BMPs into the project's drainage plan. The proposed project will be designed to include site design, source control, and treatment control BMPs, as described below. The use of source control, site design, and treatment BMPs would result in a decrease potential for storm water pollution.

Site Design BMPs. The project will be designed to include site design BMPs, which reduce runoff, prevent storm water pollution associated with the project, and conserve natural areas onsite. Table 3.8-3 lists the various site design BMPs.

Table 3.8-3. Site Design Best Management Practices

	Design Concept	Description
1	Minimize Impervious Footprint	The project site will include a significant amount of undeveloped land and pervious area. The footprint for the solar arrays will be predominately pervious ground. A minimal amount of Class II base paving for access roads and parking will be constructed.
2	Conserve Natural Areas	Only a small amount of existing site area can be classified as natural landscape and will only be disturbed in necessary areas at the project.
3	Protect Slopes and Channels	The project site and surrounding areas is comprised of extremely flat topography. Erosion of slopes due to stabilization problems is not a concern.
4	Minimize Directly Connected Impervious Areas	No storm drain will be constructed onsite. The site layout does not change the existing drainage pattern.

Source: Appendix J of this EIR

Source Control BMPs. Source control BMPs (both structural and non-structural) means land use or site planning practices, or structures that aim to prevent urban runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between pollutants and urban runoff. Table 3.8-4 identifies source control BMPs that would be applicable to the proposed project.

Table 3.8-4. Source Control Best Management Practices

	Design Concept	Description
1	Design Trash Storage Areas to Reduce Pollution Introduction	Any outdoor trash storage areas will be designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash.
2	Activity Restrictions	Restrictions include activities that have the potential to create adverse impacts on water quality.
3	Non-storm Water Discharges	Illegal dumping educational materials as well as spill response materials will be provided to employees.
4	Outdoor Loading and Unloading	Material handling will be conducted in a manner as to prevent any storm water pollution.

Table 3.8-4. Source Control Best Management Practices

	Design Concept	Description
5	Spill Prevention, Control, and Cleanup	The project will require a Spill Prevention, Control, and Countermeasure Plan, and a Hazardous Materials Business Plan in accordance with Federal and State requirements.
6	Education	Employees will receive materials for storm water pollution prevention in the form of brochures and other information in a format approved by the County of Imperial.
7	Integrated Pest Management	If any pesticide is required onsite, the need for pesticide use in the project design will be reduced by: • Keeping pests out of buildings using barriers, screens, and caulking • Physical pest elimination techniques, such as squashing, trapping, washing or pruning out pests • Relying on natural enemies to eat pests • Proper use of pesticides as a last line of defense
8	Vehicle and Equipment Fueling, Cleaning, and Repair	All vehicles will be serviced offsite whenever possible. If servicing is required onsite, it must be conducted in an area isolated from storm drain inlets or drainage ditch inlets. The area must be bermed and precluded from run on. Any spillage must be fully contained and captured and disposed of per County of Imperial Hazardous Waste requirements.
9	Waste Handling and Disposal	Materials will be disposed of in accordance with Imperial County Hazardous Material Management guidelines and will be sent to appropriate disposal facilities. Under no circumstances shall any waste or hazardous materials be stored outside without secondary containment.

Source: Appendix J of this EIR

Treatment Control BMPs. The proposed project will incorporate post-construction Low Impact Development Treatment Control BMPs, including but not limited to infiltration trenches or bioswales, which shall be investigated and integrated into the project layout to the maximum extent practicable. The drainage plan shall provide both short-term and long-term drainage solutions to ensure the proper sequencing of drainage facilities and treatment of runoff generated from project impervious surfaces prior to off-site discharge.

The proposed project shall develop a long-term maintenance plan and implemented to support the functionality of treatment control BMPs. The facility layout shall also include sufficient container storage and on-site containment and pollution-control devices for drainage facilities to avoid the off-site release of water quality pollutants, including, but not limited to oil and grease, fertilizers, treatment chemicals, and sediment (Appendix J of this EIR).

Mitigation Measure(s)

HYD-1 **Prepare SWPPP and Implement BMPs Prior to Construction and Site Restoration.** The project applicant or its contractor shall prepare a SWPPP specific to the project and be responsible for securing coverage under SWRCB's NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ). The SWPPP shall identify specific actions and BMPs relating to the prevention of stormwater pollution from project-related construction sources by identifying a practical

sequence for site restoration, BMP implementation, contingency measures, responsible parties, and agency contacts. The SWPPP shall reflect localized surface hydrological conditions and shall be reviewed and approved by the appropriate agency prior to commencement of work and shall be made conditions of the contract with the contractor selected to build and decommission the project. The SWPPP shall incorporate control measures in the following categories:

- Soil stabilization and erosion control practices (e.g., hydroseeding, erosion control blankets, mulching)
- Sediment control practices (e.g., temporary sediment basins, fiber rolls)
- Temporary and post-construction on- and off-site runoff controls
- Special considerations and BMPs for water crossings and drainages
- Monitoring protocols for discharge(s) and receiving waters, with emphasis place on the following water quality objectives: dissolved oxygen, floating material, oil and grease, potential of hydrogen (pH), and turbidity
- Waste management, handling, and disposal control practices
- Corrective action and spill contingency measures
- Agency and responsible party contact information
- Training procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP

The SWPPP shall be prepared by a Qualified SWPPP Practitioner and/or Qualified SWPPP Developer with BMPs selected to achieve maximum pollutant removal and that represent the best available technology that is economically achievable. Emphasis for BMPs shall be placed on controlling discharges of oxygen-depleting substances, floating material, oil and grease, acidic or caustic substances or compounds, and turbidity. BMPs for soil stabilization and erosion control practices and sediment control practices will also be required. Performance and effectiveness of these BMPs shall be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (inadvertent petroleum release) is required to determine adequacy of the measure.

HYD-2 **Incorporate Post-Construction Runoff BMPs into Project Drainage Plan.** The project Drainage Plan shall adhere to the County's Engineering Guidelines Manual, IID "Draft" Hydrology Manual, or other recognized source with approval by the County Engineer to control and manage the on- and off-site discharge of stormwater to existing drainage systems. Infiltration basins will be integrated into the Drainage Plan to the maximum extent practical. The Drainage Plan shall provide both short- and long-term drainage solutions to ensure the proper sequencing of drainage facilities and management of runoff generated from project impervious surfaces as necessary.

Significance after Mitigation

With the implementation of Mitigation Measure HYD-1, impacts on surface water quality as attributable to the project would be reduced to a less than significant level through the inclusion of focused BMPs for the protection of surface water resources. Monitoring and contingency response measures would be included to verify compliance with water quality objectives for all surface waters crossed during construction.

With the implementation of Mitigation Measure HYD-2, potential water quality impacts resulting from post-construction discharges during operation for the project would be reduced to a less than significant level. Implementation of Mitigation Measure HYD-2 would require the project to incorporate post-construction BMPs into the project's drainage plan. The use of source control, site design, and treatment BMPs would result in a decrease potential for storm water pollution.

Impact 3.8-2 Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The proposed project may involve the construction of a groundwater well and use of groundwater for construction, and potentially limited operational use, of the project. As described in Chapter 2 Project Description, the construction of a groundwater well requires approval of a CUP. Approval of the CUP would be contingent upon the availability of groundwater to serve the project and ability to recharge the aquifer so that groundwater supplies are not substantially decreased by the proposed project. As discussed in Section 3.11 Utilities/Service Systems, adequate groundwater resources are available to serve the project.

Further, groundwater recharge in the area will not be significantly affected because of the fact that the majority of the project site will feature a pervious landscape in both the existing and proposed conditions. Any runoff from solar panel washing would evaporate or percolate through the ground, as a majority of the surfaces in the solar field would remain pervious. Retention basins will also provide infiltration and groundwater recharge. The proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. No significant impacts on groundwater supply or recharge would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.8-3 Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

Result in substantial erosion or siltation on- or off-site?

Soil erosion could result during construction of the proposed project in association with grading and earthmoving activities. The project site would be disturbed by construction activities such as grading and clearing as a part of site preparation. To the extent feasible, site preparation would be planned and designed to minimize the amount of earth movement. Compaction of the soil to support building and traffic loads as well as the PV module supports may be required and is dependent on final

engineering design. During construction, erosion would be controlled in accordance with County standards which include preparation, review and approval of a grading plan by the County Engineer; implementation of a Dust Control Plan (Rule 801); and compliance with the NPDES General Construction Permit.

Daily operations and routine maintenance (such as occasional PV panel washing) are not anticipated to increase erosion. During operational activities, soil erosion and sedimentation would be controlled in accordance with the NPDES General Construction Permit and project-specific SWPPP. The project site would remain largely impervious over the operational life of the project.

The project would incorporate on-site storm water retention basins to retain the 100-year, 24-hour storm event of 3 inches over the entire developed area. There would be 5 retention basins to provide 30 af of storage capacity. The basins are located westerly and southerly of the developed area. The off-site runoff will be intercepted by the proposed earthen channel at the northerly and easterly boundaries of the solar energy facility. The earthen channel will convey off-site storm water runoff around the development and discharge in the same manner as existing conditions downstream of the project site to continue its natural course and eventually into the East Highline Canal (Appendix J of this EIR). The proposed project would result in less than significant impacts associated with the alteration of drainage patterns resulting in substantial erosion or siltation on- or off-site.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.8-4 Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

The proposed project would incorporate on-site storm water retention basins to retain the 100-year (0.01 percent annual chance of a flood), 24-hour storm event of 3 inches over the entire developed area (28.75 af of runoff volume). Five retention basins would be constructed on the project site to provide 30 af of storage capacity. As shown in Figure 3-3, the retention basins are located immediately adjacent to the west and south of the solar energy facility.

The off-site runoff will be intercepted by the proposed earthen channel at the northerly and easterly boundaries of the solar energy facility. The earthen channel will convey off-site storm water runoff around the development and discharge in the same manner as existing conditions downstream of the project site to continue its natural course and eventually into the East Highline Canal. The proposed earthen channels would provide flood protection to the development from uncontrolled off-site storm runoff. The project will be designed to meet County of Imperial storage requirements (100 percent of the 100-year storm (3 inches of rain)) (refer to the County's *Engineering Guidelines Design Guidelines Manual for the Preparation and Checking of Street Improvement, Drainage and Grading Plans within Imperial County* (2008) for storm water runoff, which will result in an impoundment of runoff in excess of the anticipated volume of runoff to be generated by the 100-year storm event. Therefore, the proposed project would result in no significant impacts associated with the alteration of drainage patterns resulting in on- or off-site flooding

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.8-5 ***Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:***

Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The proposed project is not anticipated to generate a significant increase in the amount of runoff water from water use involving solar panel washing. Water will continue to percolate through the ground, as a majority of the surfaces on the project site will remain pervious. The proposed project would not 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. This is considered a less than significant impact.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.8-6 ***Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:***

Impede or redirect flood flows?

According to the FEMA's FIRM (Map Number 06025C0425C) (FEMA 2008), the proposed solar energy facility, gen-tie line, and access roads located on the western portion of the project site are located in Zone X (unshaded). The FEMA Zone X (unshaded) designation is an area determined to be outside the 0.2 percent annual chance floodplain.

According to the FEMA FIRM (Map Number 06025C0450C) (FEMA 2008), the proposed eastern access road that would connect to Gas Line Road is located in a 100-year flood zone (0.01 percent annual chance) (Zone A). The proposed eastern access road would not involve the addition of structures which could impede or redirect flood flows. In addition, the proposed access road would be constructed with an all-weather surface allowing runoff to continue to percolate into the ground. Therefore, the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows, and impacts would be less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.8-7 In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

The project site is not located near any large bodies of water. The Salton Sea is located approximately 10 miles west of the project site. Because of the distance, the Salton Sea does not pose a particularly significant danger of inundation from seiche or tsunami as related to the project site. Furthermore, the project site is over 100 miles inland from the Pacific Ocean. In addition, the project site is relatively flat. Therefore, there is no potential for the project site to be inundated by seiches or tsunamis.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.8-8 Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As described under Impact 3.8-1 above, with the implementation of Mitigation Measure HYD-1, impacts on surface water quality as attributable to the project would be reduced to a less than significant level through the inclusion of focused BMPs for the protection of surface water resources. Implementation of Mitigation Measure HYD-2 would require the project to incorporate post-construction BMPs into the project's drainage plan. The use of source control, site design, and treatment BMPs would result in a decrease potential for storm water pollution. Therefore, the proposed project would not pose a significant threat to local surface water features or shallow groundwater resources. Implementation of Mitigation Measures HYD-1 and HYD-2 would reduce impacts to a level less than significant.

Mitigation Measure(s)

No additional mitigation measures beyond Mitigation Measures HYD-1 and HYD-2 are required.

Significance after Mitigation

With the implementation of Mitigation Measures HYD-1 and HYD-2, the potential water quality impacts resulting during construction and operation of the project would be reduced to a level less than significant.

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiberoptic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No grading would be required. No new transmission structures would be required to install the fiberoptic cable. The proposed fiberoptic cable would result in no significant hydrology and water quality impacts.

3.8.4 Decommissioning/Restoration and Residual Impacts

Decommissioning/Restoration

Decommissioning and restoration activities would result in similar impacts on hydrology and water quality as would occur during construction of the proposed project. The primary water quality issue associated with decommissioning/restoration would be potential impacts on surface water quality, as the decommissioning activities would be similar to construction activities, and would be considered a significant impact. However, during decommissioning, soil erosion would be controlled in accordance with NPDES General Construction Permit(s) and project-specific SWPPP. Compliance with requirements and best available control technologies in place at the time of decommissioning are anticipated to be similar to, or more stringent than, those currently required. Compliance with all applicable water quality regulations would reduce the project's impacts during decommissioning to a level less than significant. Impacts on other water resource issues, including alteration of drainage patterns, contributing to off-site flooding, impacts on groundwater recharge and supply, would be less than significant. There would be no impact associated with inundation from flooding or mudflows.

Residual

With implementation of the mitigation measures listed above, implementation of the project would not result in any residual significant impacts related to increased risk of flooding from stormwater runoff, from water quality effects from long-term urban runoff, or from short-term alteration of drainages and associated surface water quality and sedimentation. With the implementation of the required mitigation measures during construction and decommissioning of the project, water quality impacts would be minimized to a less than significant level. Based on these circumstances, the project would not result in any residential significant and unmitigable adverse impacts on surface water hydrology and water quality.

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3.9 Land Use Planning

This section provides information regarding current land use, land use designations, and land use policies within, and in the vicinity of, the project site. Section 15125(d) of the CEQA Guidelines states that "[t]he EIR shall discuss any inconsistencies between the project and applicable general plans and regional plans." This section fulfills this requirement for the project. In this context, this section reviews the land use assumptions, designations, and policies of the County General Plan and other applicable federal, state, and local requirements, which governs land use within the project area and evaluates the project's potential to conflict and/or adherence with policies adopted for the purpose of avoiding or mitigating significant environmental effects. Where appropriate, mitigation is applied and the resulting level of impact identified.

3.9.1 Existing Conditions

Solar Energy Facility Site and Gen-Tie Line

The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County. The project site is located on one parcel of land identified as APN 003-240-001. The proposed project would be located on approximately 100 acres within the northwest portion of this 640-acre parcel. The project site is located east of the intersection of Wilkins Road and an unnamed County road. The project footprint (physical area where proposed solar energy facility project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road.

As shown on Figure 3.9-1, the 640-acre parcel is designated as Recreation under the County's General Plan. As depicted on Figure 3.9-2, the project site is currently zoned Open Space/Preservation with a Geothermal Overlay (S-2-G).

The County adopted the RE and Transmission Element, which includes a RE Zone (RE Overlay Map). The RE Overlay Zone is concentrated in areas determined to be the most suitable for the development of RE facilities while minimizing the impact to other established uses. As shown on Figure 3.9-2, the project site is located outside of the RE Energy Zone, but immediately adjacent to it.

Land uses surrounding the project site are designated by the General Plan as Recreation and Government to the north, Recreation and Special Purpose Facility to the east, and Agriculture to the south and west. The project site is generally surrounded to the north, east, and south by vacant land. A private road and the East Highline Canal border the project site to the south. Existing transmission lines border the project site to the east. An agricultural field lies to the northwest of the project site. The project site is located on the eastern edge of active agricultural lands with desert lands located immediately to the east and beyond.

The project site is located in a sparsely populated portion of Imperial County. There are no established residential communities located within or in the vicinity of the project site. The nearest established residential community is in Niland, located approximately 2 miles south of the project site.

The nearest airport to the project site is the Cliff Hatfield Memorial Airport, located approximately 10 miles south of the project site.

Figure 3.9-1. General Plan Land Use Designations

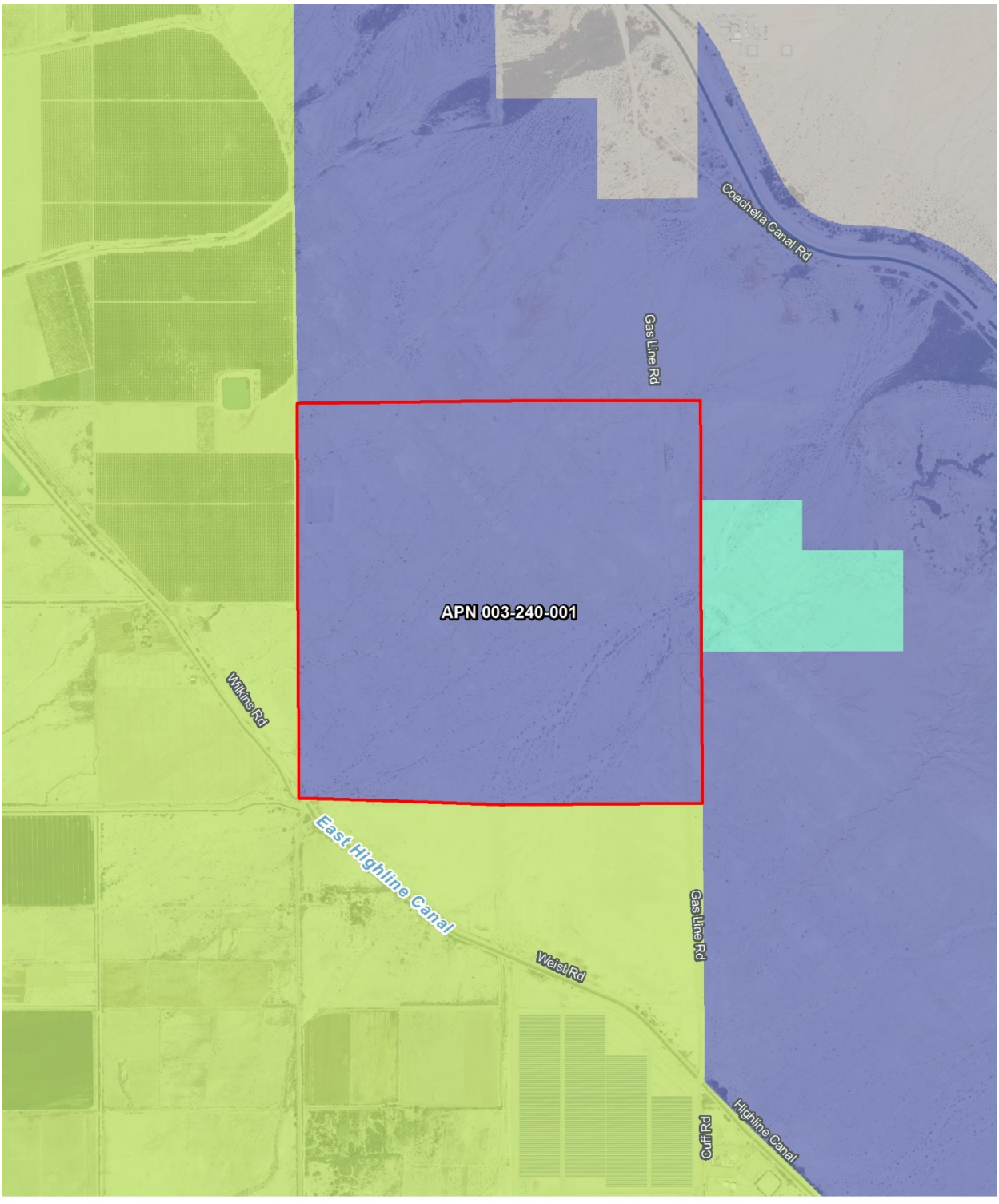
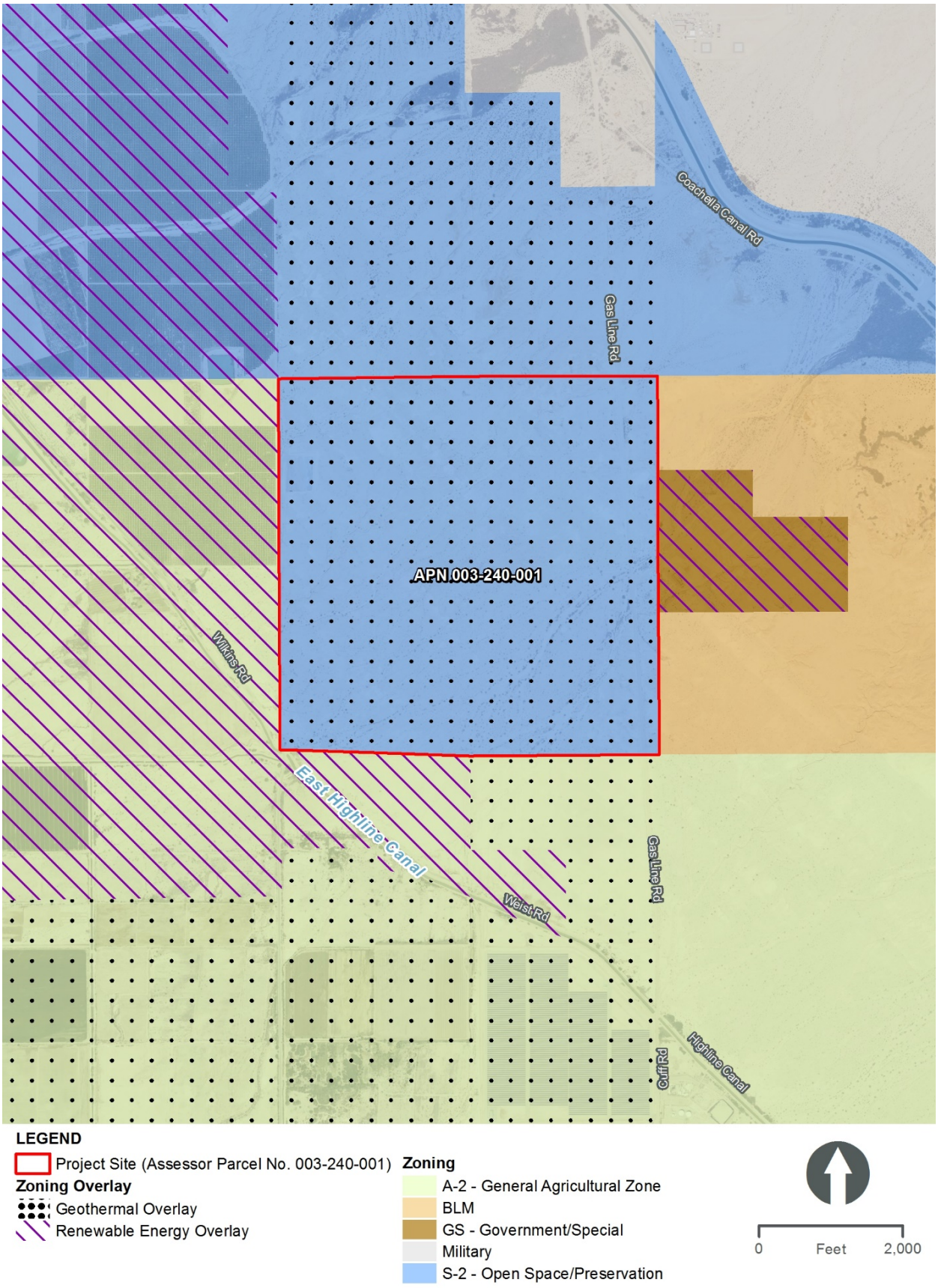


Figure 3.9-2. Zoning Designations



Fiberoptic Cable

The proposed fiberoptic cable originates at the project's substation on the solar energy facility site and terminates at the existing Niland Substation. The majority of the fiberoptic cable alignment traverses multiple parcels designated by the General Plan as Agriculture. The existing Niland Substation is located on APN 021-160-014 and is designated by the General Plan as Urban and zoned General Agriculture Zone with an urban area overlay (A-2-U).

3.9.2 Regulatory Setting

This section identifies and summarizes laws, policies, and regulations that are applicable to the project.

State

State Planning and Zoning Laws

California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning.

The general plan addresses a broad range of topics, including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area. The general plan is a long-range document that typically addresses the physical character of an area over a 20-year period or more.

The State Zoning Law (California Government Code Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific zone district, are required to be consistent with the general plan and any applicable specific plans.

Regional

Southern California Association of Governments - 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy

SCAG is the designated metropolitan planning organization for Los Angeles, Ventura, Orange, San Bernardino, Riverside, and Imperial Counties. CEQA requires that regional agencies like SCAG review projects and plans throughout its jurisdiction. SCAG, as the region's "Clearinghouse," collects information on projects of varying size and scope to provide a central point to monitor regional activity. SCAG has the responsibility of reviewing dozens of projects, plans, and programs every month. Projects and plans that are regionally significant must demonstrate to SCAG their consistency with a range of adopted regional plans and policies.

On April 7, 2016, SCAG adopted the 2016-2040 RTP/SCS. The RTP/SCS includes a strong commitment to reduce emissions from transportation sources to comply with Senate Bill 375, improve public health, and meet the NAAQS as set forth by the federal CAA.

Local

County of Imperial General Plan

The purpose of the County's General Plan (as amended through 2008) is to direct growth, particularly urban development, to areas where public infrastructure exists or can be provided, where public health and safety hazards are limited, and where impacts to the County's abundant natural, cultural, and economic resources can be avoided. The following 10 elements comprise the County's General Plan: Land Use; Housing; Circulation and Scenic Highways; Noise; Seismic and Public Safety; Conservation and Open Space; Agricultural; RE and Transmission Element; Water; and Parks and Recreation. Together, these elements satisfy the seven mandatory general plan elements as established in the California Government Code. Goals, objectives, and implementing policies and actions programs have been established for each of the elements. Table 3.9-1 provides an analysis of the project's consistency with applicable goals and policies contained in the County of Imperial General Plan.

Imperial County received funding from the California Energy Commission RE and Conservation Planning Grant to amend and update the County's General Plan in order to facilitate future development of RE projects. The Geothermal/Alternative Energy and Transmission Element was last updated in 2006. Since then there have been numerous renewable projects proposed, approved, and constructed within Imperial County as a result of California's move to reduce GHG emissions, develop alternative fuel sources and implement its Renewable Portfolio Standard. The County prepared an update to the Geothermal/Alternative Energy and Transmission Element of its General Plan, called the RE and Transmission Element. This Element is designed to provide guidance and approaches with respect to the future siting of RE projects and electrical transmission lines in the County. The County adopted this element in 2016, which has been amended several times to incorporate additional overlay zones.

Table 3.9-1. Project Consistency with Applicable Plan Policies

Applicable Policies	Consistency Determination	Analysis
Imperial County General Plan, Land Use Element		
Public Facilities, Objective 8.7. Ensure the development, improvement, timing, and location of community sewer, water, and drainage facilities will meet the needs of existing communities and new developing areas.	Consistent	The project includes the necessary supporting infrastructure and would not require new community-based infrastructure. The project would be required to construct supporting drainage infrastructure on-site consistent with County requirements and mitigation measures prescribed in Section 3.8 Hydrology/Water Quality of the EIR. Once the project is operational, a limited amount of water would be required for solar panel washing and fire protection. The proposed project would not require an operations and maintenance building. Therefore, no septic system would be required for the project.

Table 3.9-1. Project Consistency with Applicable Plan Policies

Applicable Policies	Consistency Determination	Analysis
Public Facilities, Objective 8.8. Ensure that the siting of future facilities for the transmission of electricity, gas, and telecommunications is compatible with the environment and County regulation.	Consistent	The County Land Use Ordinance, Division 17, includes the RE Overlay Zone, which authorizes the development and operation of RE projects with an approved CUP. The RE Overlay Zone is concentrated in areas determined to be the most suitable for the development of RE facilities while minimizing the impact to other established uses. CUP applications proposed for specific RE projects not located in the RE Overlay Zone would not be allowed without an amendment to the RE Overlay Zone. The County's General Plan and Land Use Ordinance allows that for RE projects proposed on land classified in a non-RE Overlay zone, that the land on which the project is located may be included/classified in the RE Overlay Zone if the RE project: 1) would be located adjacent to an existing RE Overlay Zone; 2) is not located in a sensitive area; and, 3) and would not result in any significant environmental impacts. As shown on Figure 3.9-2, the project site is located outside, but immediately adjacent to the RE Overlay Zone. Therefore, the applicant is requesting a General Plan Amendment and Zone Change to include/classify the project site into the RE Overlay Zone. With the approval of the General Plan Amendment, Zone Change, and the CUP for operation of the solar facility, the proposed project can be implemented.
Public Facilities, Objective 8.9. Require necessary public utility rights-of-way when appropriate.	Consistent	The project would include the dedication of ROW, if necessary, to facilitate the placement of electrical distribution and transmission infrastructure.
Protection of Environmental Resources, Objective 9.6. Incorporate the strategies of the Imperial County AQAP in land use planning decisions and as amended.	Consistent	Dust suppression will be implemented in accordance with a dust control plan approved by the ICAPCD. Section 3.3, Air Quality, discusses the project's consistency with the AQAP in more detail.

Table 3.9-1. Project Consistency with Applicable Plan Policies

Applicable Policies	Consistency Determination	Analysis
Imperial County General Plan, Circulation and Scenic Highways Element		
Safe, Convenient, and Efficient Transportation System, Objective 1.1. Maintain and improve the existing road and highway network, while providing for future expansion and improvement based on travel demand and the development of alternative travel modes.	Consistent	The project would include limited operational vehicle trips and would not be expected to reduce the current LOS at affected intersections, roadway segments, and highways. The project does not propose residential or commercial development and therefore would not require new forms of alternative transportation to minimize impacts to existing roadways. A total of three access roads will service the proposed project. Access to the project site from the east would be located off Gas Line Road. Access to the solar energy facility portion of the project site from the west would include two routes: one route north from the southwest corner of the parcel off Wilkins Road (main access road), and another route off Wilkins Road just south of the existing orchard to the west of the project. All access roads will be constructed with an all-weather surface.
Safe, Convenient, and Efficient Transportation System, Objective 1.2. Require a traffic analysis for any new development which may have a significant impact on County roads.	Consistent	The Imperial County Department of Public Works has reviewed the trip generation associated with project construction and proposed construction traffic routes and has determined that a formal traffic study is not warranted for the project. Once construction is completed, the project would be remotely operated, controlled and monitored and with no requirement for daily on-site employees. The project would include limited operational vehicle trips and would not be expected to reduce the current LOS at affected intersections, roadway segments, and highways.
Imperial County General Plan, Noise Element		
Noise Environment. Objective 1.3. Control noise levels at the source where feasible.	Consistent	Where construction-related and operational noise would occur in close proximity to noise sensitive land uses (e.g. less than 500 feet), the County would condition the projects to maintain conformance with County noise standards. There are currently no sensitive noise receptors that could be affected by the proposed project either during construction or operation.
Project/Land Use Planning. Goal 2: Review Proposed Actions for noise impacts and require design which will provide acceptable indoor and outdoor noise environments.	Consistent	As discussed in Section 6.0, Effects Found Not Significant, the project would be required to comply with the County's noise standards during both construction and operation. Further, there are no sensitive receptors that could be affected by the proposed project either during construction or operation.

Table 3.9-1. Project Consistency with Applicable Plan Policies

Applicable Policies	Consistency Determination	Analysis
Imperial County General Plan, Conservation and Open Space Element		
Conservation of Environmental Resources for Future Generations Goal 1: Environmental resources shall be conserved for future generations by minimizing environmental impacts in all land use decisions and educating the public on their value.	Consistent	The project site would be converted from undeveloped land to a solar energy facility. The proposed project is a response to the state's need for RE to meet its Renewable Portfolio Standard, and while it would increase the availability of RE, it would also replace existing sources of non-RE. The power generated by the project would be added to the state's electricity grid with the intent that it would displace fossil fueled power plants and their associated environmental impacts (i.e., air quality and GHG emissions). The proposed project would ensure future generations have access to a broad array of RE sources, providing the public with alternative choices to fossil fuels.
Conservation of Biological Resources. Goal 2: The County will integrate programmatic strategies for the conservation of critical habitats to manage their integrity, function, productivity, and long-term viability.	Consistent	A biological resources survey was conducted for the project site. As discussed in Section 3.4, Biological Resources, there are potentially significant biological resources located within the project site. However, with the implementation of mitigation identified in Section 3.4, Biological Resources, these impacts would be reduced to a level less than significant. The site is not designated or otherwise identified as critical habitat for any species.
Preservation of Cultural Resources. Objective 3.1 Protect and preserve sites of archaeological, ecological, historical, and scientific value, and/or cultural significance.	Consistent	A cultural resources report was prepared for the project site. As discussed in Section 3.5, Cultural Resources, the proposed project has the potential to encounter undocumented archaeological resources and human remains. Mitigation Measures CR-1 through CR-3 have been identified to reduce potential impacts to a level less than significant.

Table 3.9-1. Project Consistency with Applicable Plan Policies

Applicable Policies	Consistency Determination	Analysis
Protection of Open Space and Recreational Opportunities. Objective 8.2 Focus all new renewable energy development within adopted Renewable Energy Overlay Zones.	Consistent	The County's General Plan and Land Use Ordinance allows that for RE projects proposed on land classified in a non-RE Overlay zone, that the land on which the project is located may be included/classified in the RE Overlay Zone if the RE project: 1) would be located adjacent to an existing RE Overlay Zone; 2) is not located in a sensitive area; and, 3) and would not result in any significant environmental impacts. As shown on Figure 3.9-2, the project site is located outside of the RE Overlay Zone. Therefore, the applicant is requesting a General Plan Amendment and Zone Change to include/classify the project site into the RE Overlay Zone. With the approval of the General Plan Amendment, Zone Change, and CUP for operation of the solar facility, the proposed project can be implemented. As detailed in Sections 3.1 through 3.11 of this EIR, no unavoidable or unmitigable significant impacts were identified. Where significant impacts have been identified, mitigation measures are proposed, that when implemented, would reduce the impact level to less than significant.
Protection of Air Quality and Addressing Climate Change Goal 7: The County shall actively seek to improve the quality of air in the region.	Consistent	The proposed project would be required to comply with all applicable ICAPCD rules and requirements during construction and operation to reduce air emissions. Overall, the proposed project would improve air quality and reduce GHG emissions by reducing the amount of emissions that would be generated in association with electricity production from a fossil fuel burning facility. Therefore, the proposed Project is consistent with this goal.
Objective 7.1: Ensure that all project and facilities comply with current Federal, State and local requirements for attainment of air quality objectives.	Consistent	The proposed project would comply with current federal and State requirements for attainment for air quality objectives through conformance with all applicable ICAPCD rules and requirements to reduce fugitive dust and emissions. Further, the project would comply with the ICAPCD Air Quality CEQA Handbook's Mandatory Standard, Discretionary and Enhanced Air Quality Measures (Mitigation Measure AQ-2). Therefore, the proposed project is consistent with this objective.

Table 3.9-1. Project Consistency with Applicable Plan Policies

Applicable Policies	Consistency Determination	Analysis
Objective 7.2: Develop management strategies to mitigate fugitive dust. Cooperate with all federal and state agencies in the effort to attain air quality objectives.	Consistent	The Applicant would cooperate with all federal and State agencies in the effort to attain air quality objectives through compliance with the ICAPCD Air Quality CEQA Handbook's Mandatory Standard, Discretionary and Enhanced Air Quality Measures (Mitigation Measure AQ-2). Therefore, the proposed project is consistent with this objective.
Program: Structural development normally shall be prohibited in the designated floodways. Only structures which comply with specific development standards should be permitted in the floodplain.	Consistent	The project does not contain a residential component nor would it place housing or other structures within a 100-year flood hazard area.
Imperial County General Plan, RE and Transmission Element		
Objective 1.5: Require appropriate mitigation and monitoring for environmental issues associated with developing RE facilities.	Consistent	A biological resources report has been prepared for the project, which is summarized in Section 3.4, Biological Resources, along with potential impacts attributable to the project. With incorporation of mitigation identified in Section 3.4, Biological Resources, less than significant impacts would result.
Objective 1.7: Assure that development of RE facilities and transmission lines comply with ICAPCD's regulations and mitigation measures.	Consistent	Dust suppression will be implemented including the use of water and soil binders during construction. Section 3.3, Air Quality, discusses the project's consistency with ICAPCD's regulations in more detail.
Objective 2.1: To the extent practicable, maximize utilization of IID's transmission capacity in existing easements or rights-of-way. Encourage the location of all major transmission lines within designated corridors easements, and rights-of-way.	Consistent	The project involves the construction and operation of new RE infrastructure that would interconnect with existing IID transmission infrastructure thereby maximizing the use of existing facilities located within existing easements and/or ROWy. As discussed in Chapter 2, Project Description, the power produced by the proposed project would be conveyed to the local power grid via an on-site 92 kV substation, which will be tied directly to IID's 92 kV transmission line.
Imperial County General Plan, Seismic and Public Safety Element		
Goal 1. Include public health and safety considerations in land use planning.	Consistent	Division 5 of the County Land Use Ordinance has established procedures and standards for development within earthquake fault zones. Per County regulations, construction of buildings intended for human occupancy which are located across the trace of an active fault are prohibited. An exception exists when such buildings located near the fault or within a designated Special Studies Zone are demonstrated through a geotechnical analysis and report not to expose a
Objective 1.1. Ensure that data on geological hazards is incorporated into the land use review process, and future development process.		
Objective 1.3. Regulate development adjacent to or near all mineral deposits and geothermal operations.		

Table 3.9-1. Project Consistency with Applicable Plan Policies

Applicable Policies	Consistency Determination	Analysis
Objective 1.4. Require, where possessing the authority, that avoidable seismic risks be avoided; and that measures, commensurate with risks, be taken to reduce injury, loss of life, destruction of property, and disruption of service.		person to undue hazard created by the construction. Since the project site is located in a seismically active area, the project is required to be designed in accordance with the CBC for near source factors derived from a design basis earthquake based on a peak ground acceleration of 0.50 gravity. It should be noted that, the project would be remotely operated and would not require any habitable structures on site. In considering these factors in conjunction with mitigation requirements outlined in the impact analysis, the risks associated with seismic hazards would be minimized. A preliminary geotechnical report has been prepared for the proposed project. The preliminary geotechnical report has been referenced in this environmental document. Additionally, a design-level geotechnical investigation would be conducted to evaluate the potential for site specific hazards associated with seismic activity.
Objective 1.7. Require developers to provide information related to geologic and seismic hazards when siting a proposed project.		
Goal 2: Minimize potential hazards to public health, safety, and welfare and prevent the loss of life and damage to health and property resulting from both natural and human-related phenomena.		
Objective 2.2. Reduce risk and damage due to seismic hazards by appropriate regulation.		
Objective 2.5 Minimize injury, loss of life, and damage to property by implementing all state codes where applicable.		
Objective 2.8 Prevent and reduce death, injuries, property damage, and economic and social dislocation resulting from natural hazards including flooding, land subsidence, earthquakes, other geologic phenomena, levee or dam failure, urban and wildland fires and building collapse by appropriate planning and emergency measures.		
Imperial County General Plan, Water Element		
Program: The County of Imperial shall make every reasonable effort to limit or preclude the contamination or degradation of all groundwater and surface water resources in the County.	Consistent	Mitigation measures will require that the applicant of the project prepare a site-specific drainage plan and water quality management plan to minimize adverse effects to local water resources.
Program: All development proposals brought before the County of Imperial shall be reviewed for potential adverse effects on water quality and quantity and shall be required to implement appropriate mitigation measures for any significant impacts.	Consistent	See response for Water Element Policy 1 above.
Imperial County General Plan, Housing Element		
Not Applicable. The proposed project is a solar energy project and does not include the development of housing.		

Table 3.9-1. Project Consistency with Applicable Plan Policies

Applicable Policies	Consistency Determination	Analysis
Imperial County ALUCP		
Safety Objective 2.1*:* The intent of land use safety compatibility criteria is to minimize the risks associated with an off-airport accident or emergency landing.	Consistent	The project site is not located within a designated ALUCP area. The proposed project would use non- or anti-reflective material to reduce potential glare impacts to aircraft. At its meeting on June 17, 2020, the Airport Land Use Commission reviewed the project for consistency with the ALUCP and made the finding that the project is consistent with the 1996 ALUCP.

Source: Imperial County General Plan, as amended

Notes:
ALUCP=Airport Land Use Compatibility Plan; AQAP=air quality attainment plan; CBC=California Building Code; CUP=conditional use permit; EIR=environmental impact report; ICAPCD=Imperial County Air Pollution Control District; IID=Imperial Control District; LOS=level of service; MW=megawatt; RE=renewable energy; ROW=right-of-way

The RE and Transmission Element includes a RE Zone (RE Overlay Map). The County Land Use Ordinance, Division 17, includes the RE Overlay Zone, which authorizes the development and operation of RE projects, with an approved CUP. The RE Overlay Zone is concentrated in areas determined to be the most suitable for the development of RE facilities while minimizing the impact to other established uses. As shown on Figure 3.9-2, the project site is located outside of, but immediately adjacent to the RE Overlay Zone.

An analysis of the project's consistency with the General Plan goals and objectives relevant to the project is provided in Table 3.9-1. While this EIR analyzes the project's consistency with the General Plan pursuant to CEQA Guidelines Section 15125(d), the Imperial County Planning Commission and Board of Supervisors retain final authority for the determination of the project's consistency with the General Plan.

County of Imperial Land Use Ordinance

Permitted and Conditional Uses. The County's Land Use Ordinance provides the physical land use planning criteria for development within the jurisdiction of the County. As depicted on Figure 3.9-2, the project site is zoned Open Space/Preservation with a geothermal overlay (S-2-G). The purpose of the S-2 zoning designation is to "preserve the cultural, biological, and open space areas that are rich and natural as well as cultural resources" (County of Imperial 2017). While certain uses are allowed within the S-2 zone, such uses must be compatible with the intent of the Conservation and Open Space Element of the General Plan.

Sections 90519.01 and 90519.02 of the Land Use Ordinance identifies the permitted and conditional uses within the S-2 zoning designation. Uses identified as conditionally permitted require a CUP, which is subject to the discretionary approval of the County Board of Supervisors per a recommendation by the County Planning Commission. Pursuant to Title 9, Division 5, Chapter 19, the following uses are permitted in the S-2 zone subject to approval of a CUP from Imperial County: Major facilities relating to the generation and transmission of electrical energy provide[d] such facilities are not under State or Federal law, to [be] approved exclusively by an agency, or agencies of the State or Federal government, and provided such facilities shall be approved subsequent to coordination review of the IID for electrical matters. Such uses shall include but be limited to the following:

- Electrical generation plants
- Facilities for the transmission of electrical energy (100-200 kV)
- Electrical substations in an electrical transmission system (500 kv/230 kv/161 kV)

Height Limit. Pursuant to Section 90519.07 of the Land Use Ordinance, the maximum height limit in the S-2 zone is 40 feet, except for communication towers, which have a maximum height limit of 100 feet.

Imperial County Airport Land Use Compatibility Plan

The Imperial County Airport Land Use Compatibility Plan (ALUCP) provides the criteria and policies used by the Imperial County Airport Land Use Commission to assess compatibility between the principal airports in Imperial County and proposed land use development in the areas surrounding the airports. The ALUCP emphasizes review of local general and specific plans, zoning ordinances, and other land use documents covering broad geographic areas.

The nearest airport to the project site is the Cliff Hatfield Memorial Airport, located approximately 10 miles south of the project site. According to Figure 3C of the ALUCP, no portion of the project site is located within the Cliff Hatfield Municipal Memorial Airport's land use compatibility zones (County of Imperial 1996). At its meeting on June 17, 2020, the Airport Land Use Commission reviewed the project for consistency with the ALUCP and made the finding that the project is consistent with the 1996 ALUCP.

3.9.3 Impacts and Mitigation Measures

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to land use/planning are considered significant if any of the following occur:

- Physically divide an established community
- 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

Methodology

Impact Analysis – Solar Energy Facility and Gen-Tie Line

Impact 3.9-1 Would the project physically divide an established community?

The project site is located in a sparsely populated portion of Imperial County. There are no established residential communities located within or in the vicinity of the project site. Therefore, implementation of the proposed project would not divide an established community and no impact would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.9-2 Would the project 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's consistency with applicable land use plans, policies, and regulations is evaluated below.

County of Imperial General Plan

The County's General Plan applies to the solar energy facility and supporting infrastructure portions associated with the project. An analysis of the project's consistency with the General Plan goals and objectives relevant to the project is provided in Table 3.9-1. As shown in Table 3.9-1, the proposed project would be generally consistent with the goals and objectives of the General Plan.

General Plan Amendment. The County adopted the RE and Transmission Element, which includes a RE Energy Overlay Zone. The RE Overlay Zone is concentrated in areas determined to be the most suitable for the development of RE facilities while minimizing the impact to other established uses. As stated in the RE and Transmission Element, "CUP applications proposed for specific renewable projects not located in the RE Overlay Zone would not be allowed without an amendment to the RE Overlay Zone (County of Imperial 2016)." As shown on Figure 3.9-2, the project site is located outside of the RE Energy Zone. Therefore, the proposed project would conflict with the RE Overlay Zone because the project is located outside of areas designated for RE projects. Without an amendment to the RE Overlay Zone, the proposed project would not be allowed and would conflict with the RE and Transmission Element of the General Plan. This is considered a potentially significant impact. However, the project applicant is requesting a General Plan amendment to the RE and Transmission Element of the General Plan to include/classify the project site into the RE Overlay Zone.

As stated in the RE and Transmission Element:

An amendment to the overlay zone would only be approved by the County Board of Supervisors if a future RE project met one of the following two conditions:

- **Adjacent to the Existing RE Overlay Zone:** An amendment may be made to allow for development of a future RE project located adjacent to the existing RE Overlay Zone if the project:
    - Is not located in a sensitive area
    - Would not result in any significant impacts

- **"Island Overlay":** An amendment may be made to allow for development of a future RE project that is not located adjacent to the existing RE Overlay Zone if the project:
  - Is located adjacent (sharing a common boundary) to an existing transmission source
  - Consists of the expansion of an existing RE operation
  - Would not result in any significant environmental impacts (County of Imperial 2016).

Because the project site is located adjacent to an existing RE Overlay Zone; the project will need to meet the criteria identified for the "Adjacent to the Existing RE Overlay Zone" to obtain approval of an amendment to the RE Overlay Zone. Table 3.9-2 provides an analysis of the project's consistency with the "Adjacent to the Existing RE Overlay Zone" criteria. As shown in Table 3.9-2, the proposed project would be consistent with the "Adjacent to the Existing RE Overlay Zone" criteria because it is not located in a sensitive area and would not result in any significant environmental impacts.

The General Plan Amendment and Zone Change requests submitted by the project applicant are subject to approval by the County Board of Supervisors. If approved, the project applicant will be able to request for approval of a CUP to allow the construction and operation of the proposed solar facility and the proposed project would be consistent with the RE and Transmission Element of the General Plan.

Table 3.9-2. Project Consistency with "Adjacent to the Existing Renewable Energy Overlay Zone" Criteria

Criteria	Criteria Met?
Is not located in a sensitive area?	Consistent. The project site is not located in an area recognized as sensitive for any resource categories.
Would not result in any significant environmental impacts?	Consistent. As detailed in Sections 3.1 through 3.11 of this EIR, no unavoidable or unmitigable significant impacts were identified. Where significant impacts have been identified, mitigation measures are proposed, that when implemented, would reduce the impact level to less than significant. Therefore, the proposed project would not result in a residual significant impact.

Notes:
EIR=environmental impact report

County of Imperial Land Use Ordinance

CUP. Development of the solar energy facility and supporting infrastructure is subject to the County's zoning ordinance. Implementation of the project would require the approval of a CUP by the County to allow for the construction and operation of the proposed solar energy facility project.

The project site is located on one privately-owned legal parcel zoned Open Space/Preservation with a geothermal overlay (S-2-G). Pursuant to Title 9, Division 5, Chapter 19, the following uses are permitted in the S-2 zone subject to approval of a CUP from Imperial County: Major facilities relating to the generation and transmission of electrical energy, provided such facilities are not under State or Federal law, to be approved exclusively by an agency, or agencies of the State or Federal government, and provided such facilities shall be approved subsequent to coordination review of the IID for electrical matters. Such uses shall include but be limited to the following:

- Electrical generation plants
- Facilities for the transmission of electrical energy (100-200 kV)
- Electrical substations in an electrical transmission system (500 kv/230 kv/161 kV)

The CUP request submitted by the project applicant is subject to approval by the County Board of Supervisors. If the CUP is approved, the proposed project would not conflict with the County's zoning ordinance.

Variance. The proposed project would require the use of transmission towers of up to 70 feet in height, which would exceed the height limit within the S-2 zone. The existing S-2 zone allows a maximum height limit of 40 feet. As part of the project, a Variance application would be required which, if approved by the County, would allow the new towers to be built at 70 feet in height. If the Variance is approved, the proposed project would not conflict with the County's zoning ordinance.

Imperial County Airport Land Use Compatibility Plan

According to Figure 3C of the ALUCP, no portion of the project site is located within the Cliff Hatfield Municipal Memorial Airport's land use compatibility zones (County of Imperial 1996). Furthermore, on June 17, 2020, the Airport Land Use Commission determined that the proposed project is consistent with the ALUCP. Therefore, the proposed project would not conflict with the Imperial County ALUCP, and no significant impact would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact Analysis – Fiberoptic Cable

If the on-site wireless communication system is not constructed as described in Section 2.3.2 Substation, ~~The proposed project includes~~ the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation would be required for the remote communication system. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles within existing easements and/or ROW intended for utility uses. No new transmission structures would be required to install the fiberoptic cable. Further, the fiberoptic cable would not present a barrier between communities. Based on these considerations, the fiberoptic cable would not physically divide an established community or conflict with a land use plan, policy or regulation. No land use impacts would occur.

3.9.4 Decommissioning/Restoration and Residual Impacts

Decommissioning/Restoration

Decommissioning and restoration would not physically divide an established community or conflict with any applicable land use plans, policies, or regulations. Decommissioning would be conducted in compliance with a required Reclamation Plan that would be implemented at the end of the project's life and would adhere to Imperial County's decommissioning requirements. Further, decommissioning activities would be subject to mandatory compliance with applicable local, State, and federal regulations designed to avoid adverse impacts to the project area and surrounding environment. Therefore, environmental impacts due to a conflict with an applicable land use plan, policy or regulation would be less than significant.

Residual

With the approval of a CUP and reclamation plan to address post-project decommissioning, the project would generally be consistent with applicable state, regional, and local plans and policies. Based on these circumstances, the project would not result in any residual significant and unmitigable land use impacts.

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3.10 Transportation/Traffic

This section addresses the project's impacts on traffic and the surrounding roadway network associated with construction and operation of the project. The following discussion describes the existing environmental setting in the surrounding area, the existing federal, state, and local regulations regarding traffic, and an analysis of the potential impacts of the proposed project.

3.10.1 Existing Conditions

The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County. The project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (physical area where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road.

Existing Circulation Network

The following roadway classifications are derived from the County of Imperial General Plan Circulation and Scenic Highways Element (County of Imperial 2008):

Expressway

The main function of this classification is to provide regional and intra-county travel services. Features include high design standards with six travel lanes; wide landscaped medians; highly restricted access; provisions for public transit lands, including but not limited to, bus lanes, train lanes, or other mass transit type means; and no parking. Minimum [right-of-way] [ROW] is 210 feet consisting of three travel lanes per direction, a 56-foot median, and shoulders along both sides of the travel way. The ROW width is exclusive of necessary adjacent easements such as for the IID facilities as these vary. The minimum intersection spacing is 1 mile (ROWs may be greater if the road segment also serves as a corridor for public utilities).

Prime Arterial

The main function of this classification is to provide regional, sub regional, and intra-county travel services. Features include high design standards with four to six travel lanes, raised and landscaped medians, highly restricted access, which in most cases will be a 1 mile minimum, provisions for public transit lanes, including but not limited to bus lanes, train lanes, or other mass transit type means and no parking. The absolute minimum ROW without public transit lanes is 136 feet. ROW dimensions are specified in the standards for specific road segments.

Minor Arterial

These roadways provide intra-county and sub-regional service. Access and parking may be allowed, but closely restricted in such a manner as to ensure proper function of this roadway. Typical standards include the provision for four and six travel lanes with raised landscaped medians for added safety and efficiency by providing protected left turn lanes at selected locations. Some may also contain provisions for public transit lanes or other mass transit type means. Minimum ROW is 102 feet for four lanes and 126 feet for six lanes.

Major Collector (Collector)

These roadways are designed to provide intra-county travel as a link between the long haul facilities and the collector/local facilities. Although it frequently provides direct access to abutting properties, that is not its primary purpose. Typical design features include provision for four travel lanes without a raised median and some may also contain provisions for public transit lanes or other mass transit type means. Minimum ROW is 84 feet. Parking is generally not permitted.

Minor Local Collector (Local Collector)

This is designed to connect local streets with adjacent Collectors or the arterial street system. Design standards include provision for two travel lanes and parking, except in specific locations where parking is removed to provide a turn lane at intersections. Local Collector streets frequently provide direct access to abutting properties, although that should be avoided where feasible. Minimum ROW is 70 feet.

Residential Street

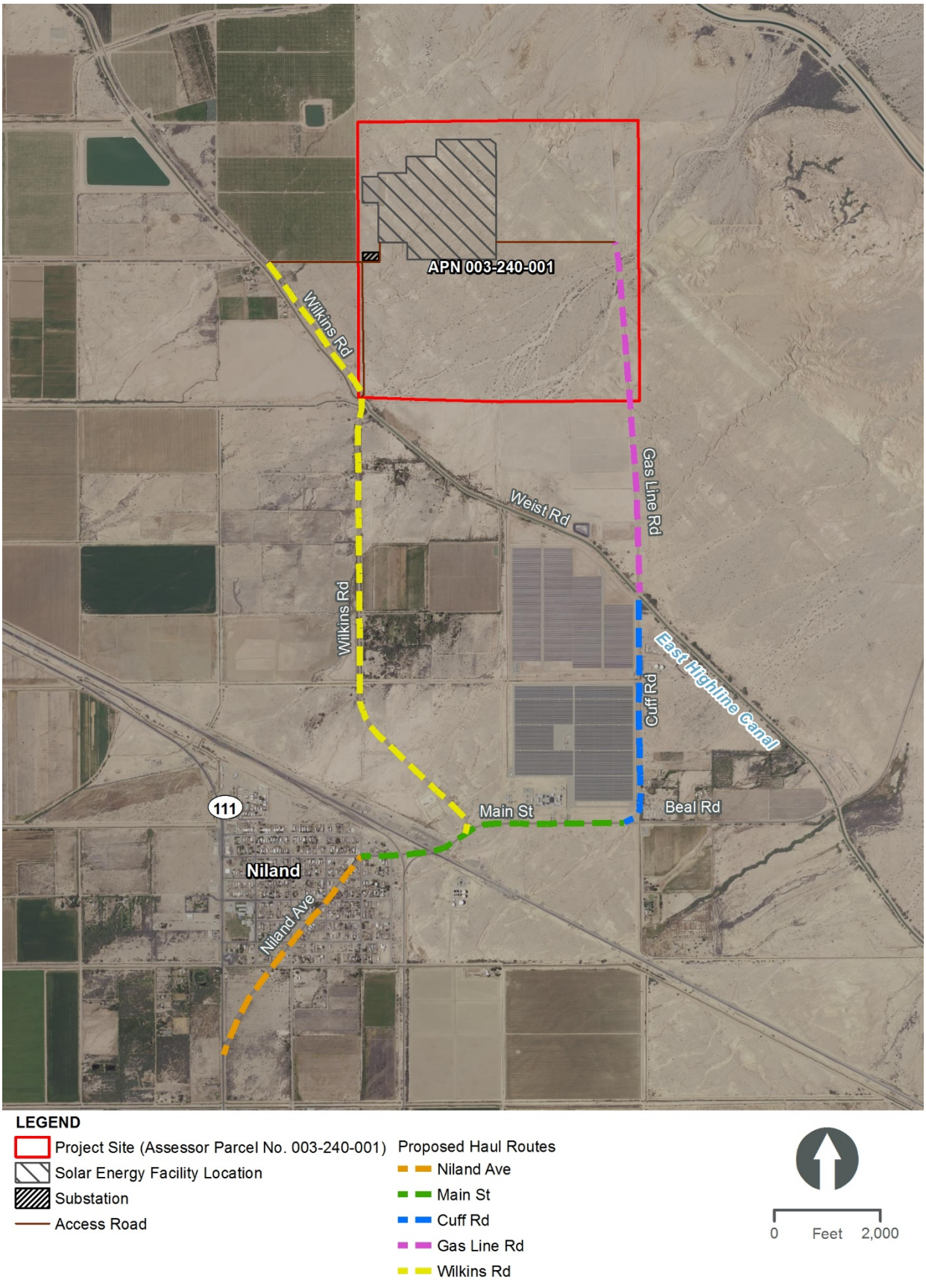
This street type includes residential cul-de-sac and loop streets and is designed to provide direct access to abutting properties and to give access from neighborhoods to the Local Street and Collector Street system. This classification should be discontinuous in alignment, such that through trips are discouraged. Typical design standards include provision for two travel lanes, parking on both sides, and direct driveway access. Minimum ROW is 60 feet.

Project Access Roadways

Following is a brief description of the roadways that would be utilized for access to the project site during construction, and subsequent operation (e.g., maintenance) activities. Figure 3.10-1 depicts the proposed haul routes/construction access to the project site.

- **State Route (SR)-111** (Caltrans-operated highway). SR 111 is maintained by Caltrans and is considered to be in good condition. Because SR 111 is a State operated facility, it is not maintained by the County.
- **Niland Avenue.** Niland Avenue is a paved County road.
- **Main Street.** Main Street is a paved County road.
- **Cuff Road.** Cuff Road is an unpaved County road.
- **Wilkins Road.** Wilkins Road is a paved County road. The portion of Wilkins Road from the southwest corner of the project parcel to the southern end of the existing orchard will only be utilized while improving the project's secondary emergency access road (along southern end of orchard). After improvement of the proposed secondary emergency access road, the project applicant's easement with the land owner specifies this road will only be used for emergency vehicles.
- **Gas Line Road.** Gas Line Road is a dirt service road.

Figure 3.10-1. Proposed Haul Routes



Alternative/Public Transportation

Fixed Route Transportation

Imperial Valley Transit (IVT) is an inter-city fixed route bus system, subsidized by the Imperial Valley Association of Governments (IVAG), administered by the County Department of Public Works and operated by a public transit bus service. The service is wheelchair accessible and Americans with Disabilities Act compliant.

Routes are categorized in the following manner:

- **Fixed Routes.** Fixed routes operate over a set pattern of travel and with a published schedule. The fixed route provides a low cost, reliable, accessible and comfortable way to travel.
- **Deviated Fixed Route.** In several service areas, IVT operates on a deviated fixed route basis so that persons with disabilities and limited mobility are able to travel on the bus. Passengers must call and request this service the day before service is desired in the communities of Seeley, Ocotillo and the east side of the Salton Sea.
- **Remote Zone Routes.** Remote zone route operate once a week. These routes are "lifeline" in nature in that they provide connections from some of the more distant communities in the Imperial County area (IVT 2020).

The project site is not within the Fixed Route Transportation system and, therefore, would not receive regular bus service to the project site or within the vicinity of the project site. The nearest IVT bus stop is on Highway 111 and Main Street in Niland.

Bicycle Facilities

The Highway Design Manual classifies bikeways into three types:

- Class I Bike Path – Provides for bicycle travel on a ROW completely separated from the street
- Class II Bike Lane – Provides a striped lane for one-way travel within the street
- Class III Bike Routes – Provides routes that are signed but not striped

Although none of the roadway segments within proximity of the project site are designated a bikeway classification, the County of Imperial Bicycle Master Plan Update lays out a framework for creating and expanding programs and improvements designed to increase bicycling activity in the County of Imperial. There are no roadways in immediate proximity to the site planned as a bike route.

Daily Street Segment Levels of Service

As previously described, the project site is located in a rural setting with many of these being compacted dirt roads with no congestion. As prescribed in the Circulation and Scenic Highway Element, the intent of the County is to provide a system of roads and streets that operate at a level of service (LOS) C or better (County of Imperial 2008).

3.10.2 Regulatory Setting

This section identifies and summarizes laws, policies, and regulations that are applicable to the project.

State

California Department of Transportation

Caltrans manages more than 50,000 miles of California's highway and freeway lanes, provides inter-city rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Specifically, Caltrans is responsible for the design, construction, maintenance, and operation of the California State Highway System.

As it relates to the proposed project and potential construction access routes, Caltrans is responsible for maintaining and managing SR 111.

Regional

2016-2040 Regional Transportation Plan/Sustainable Communities Strategy

On April 7, 2016, the Southern California Association of Governments (SCAG) adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2016). The RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. Input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses, and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The RTP/SCS demonstrates how the region will reduce emissions from transportation sources to comply with SB 375 and meet the NAAQS set forth by the Clean Air Act.

The updated RTP/SCS contains thousands of individual transportation projects that aim to improve the region's mobility and air quality and revitalize the economy. Since the RTP/SCS's adoption, the county transportation commissions have identified new project priorities and have experienced technical changes that are time-sensitive. Additionally, the new amendments for the plan have outlined minor modifications to project scopes, costs and/or funding and updates to completion years. The amendments to the RTP/SCS do not change any other policies, programs, or projects in the plan.

Local

County of Imperial Circulation and Scenic Highways Element

The Circulation and Scenic Highways Element identifies the location and extent of transportation routes and facilities. It is intended to meet the transportation needs of local residents and businesses and as a source for regional coordination. The inclusion of Scenic Highways provides a means of protecting and enhancing scenic resources within highway corridors in Imperial County. The purpose of the Circulation and Scenic Highways Element is to provide a comprehensive document which contains the latest knowledge about the transportation needs of the County and the various modes available to meet these needs. Additionally, the purpose of this Element is to provide a means of protecting and enhancing scenic resources within both rural and urban scenic highway corridors.

Coordination across jurisdictional standards for road classification and design standards was identified as a crucial component to the 2008 update of the Circulation and Scenic Highways Element. The intent

of this element is to provide a system of roads and streets that operate at a LOS "C" or better (County of Imperial 2008).

Level of Service

LOS is a professional industry standard by which the operating conditions of a given roadway segment or intersection are measured. LOS ranges from A through F, where LOS A represents the best operating conditions and LOS F represents the worst operating conditions. LOS A facilities are characterized as having free flowing traffic conditions with no restrictions on maneuvering or operating speeds; traffic volumes are low and travel speeds are high. LOS F facilities are characterized as having forced flow with many stoppages and low operating needs. Additionally, with the growth of Imperial County, transportation management and systems management will be necessary to preserve and increase roadway "capacity." LOS standards are used to assess the performance of a street or highway system and the capacity of a roadway.

County of Imperial Bicycle Master Plan Update: Final Plan

In 2012, the County of Imperial adopted an updated Bicycle Master Plan to serve as the guiding document for the development of an integrated network of bicycle facilities and supporting programs designed to link the unincorporated areas and attractive land uses throughout the County. This document is an update to the previously adopted Countywide Bicycle Master Plan; and was prepared to accomplish the following goals:

1. To promote bicycling as a viable travel choice for users of all abilities in the County
2. To provide a safe and comprehensive regional connected bikeway network
3. To enhance environmental quality, public health, recreation and mobility benefits for the County through increased bicycling

The County of Imperial's General Plan, Circulation and Scenic Highways Element, and Conservation and Open Space Element, provide a solid planning basis for the Bicycle Master Plan. In spite of the fact that there are a limited number of bicycle facilities in Imperial County and no comprehensive bicycle system, there is a growing interest in cycling and numerous cyclists bike on a regular basis for both recreation and commuting to work and school.

3.10.3 Impacts and Mitigation Measures

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to transportation and traffic are considered significant if any of the following occur:

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities
- Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access

County of Imperial

The County of Imperial does not have published significance criteria for traffic impacts. However, the Circulation and Scenic Highways Element of the County General Plan does state that the LOS goal for intersections and roadway segments is to operate at LOS C or better. Therefore, if an intersection or segment degrades from LOS C or better to LOS D or worse with the addition of project traffic, the impact is considered significant. If the location operates at LOS D or worse with and without project traffic, the impact is considered significant if the project causes the intersection delta to increase by more than 2 seconds, or the volume to capacity (V/C) ratio to increase by more than 0.02. V/C ratios provide a quantitative description of traffic conditions for signalized intersections. These amounts are consistent with those used in the County of Imperial in numerous traffic studies.

California Department of Transportation

A project is considered to have a significant impact on Caltrans facilities if the new project traffic has decreased the operations of surrounding roadways by a defined threshold. If the project exceeds the thresholds addressed in Table 3.10-1, then the project may be considered to have a significant project impact. A feasible mitigation measure will need to be identified to return the impact within the thresholds (pre-project + allowable increase) or the impact will be considered significant and unmitigated when affecting any state highway facilities. As stated previously, Caltrans is responsible for maintaining and managing SR 111.

Table 3.10-1. Level of Service Thresholds for Unsignalized Intersections

LOS	Average Control Delay Per Vehicle (Seconds/Vehicle)	Expected Delay to Minor Street Traffic
A	0.0 ≤ 10.0	Little or no delay
B	10.1 to 15.0	Short traffic delays
C	15.1 to 25.0	Average traffic delays
D	25.1 to 35.0	Long traffic delays
E	35.1 to 50.0	Very long traffic delays
F	≥ 50.0	Severe congestion

Source: Transportation Resource Board 2010
LOS – level of service

Methodology

The assessment evaluates the potential for the project, as described in Chapter 2, Project Description, to assess the project trip generation created during and after construction, and roadway conditions for roads that would be utilized to access the project site for construction.

Project Trip Generation

Project trip generation for both the construction and operational scenarios will be very minimal. The project will generate the most traffic during construction. The construction vehicle mix for both on-road and off-road equipment, by each phase of construction, is presented in Table 6 of the *Air Quality Technical* Study prepared for the project (Appendix D of this EIR).

Table 3.10-2 provides the estimated average daily on-road project trip generation (i.e., trips to and from the site) for the construction phases of the project. As shown, the maximum number of on-road trips during construction would be approximately 80 trips (50 worker trips and 30 truck trips).

The proposed project requires minimal operations and maintenance activities and would not require presence of full-time employees. However, it is conservatively assumed that for day-to-day inspection and minor maintenance, some employees would commute to the project site. The annual operations are assumed to be as follows:

- For site inspection and minor repairs, up to 4 one-way worker trips per day would be generated.
- Routine maintenance activities would include panel washing, which is expected to occur four times annually over a total of 20 days. Panel washing activities are estimated to require additional daily trips of 4 work 6 haul trucks for transport of water during each event.

This estimated project trip generation is below the County's threshold requirement for preparation of a formal traffic impact analysis as the trips would be so minimal that they would not affect roadway or intersection levels of service for any of the roadways that would be utilized for access to and from the project site. Based on the 20 MW size of the project and relatively small acreage, the construction workforce will be limited. Because of the minimal trips estimated, the Department of Public Works has not required a detailed traffic study for this project pursuant to the Imperial County Congestion Management Program (CMP).

Table 3.10-2. Project Trip Generation

Construction Phase (Duration)	Daily Vehicle Trips	
	Workers	Trucks
Site Preparation (30 working days)	30	25
Facility Installation (110 working days)	50	30
Gen-Tie, Site Restoration (20 working days)	20	20

Source: Appendix D of this EIR

Impact Analysis – Solar Energy Facility and Gen-Tie Line

Impact 3.10-1 Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

During the construction phase of the project, the maximum number of trips generated on a daily basis would be approximately 80 trips. This trip count is so low that it does not require a formal traffic analysis as it does not have the potential to impact LOS of roadway segments and intersections. There is no regular bus service to the general area and project-related construction and operations and maintenance phases would not impact mass transit. Future operations and maintenance would be conducted remotely, with minimal trips to the project site for panel washing and other solar maintenance. The proposed project would not interfere with bicycle facilities because the project is

located in a rural portion of the County with no existing or potential future designated bike routes in the area.

Implementation of the proposed project would not require any public road widening to accommodate vehicular trips associated with the project (construction phase and operational phase), while maintaining adequate level of service. Impacts on this issue area are considered less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.10-2 Would the project conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

This threshold becomes mandatory for projects in which the Draft EIR is released for public review after July 1, 2020. As such, this threshold is not evaluated in this EIR. The proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) and no impact would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.10-3 Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

To accommodate emergency access, PV panels would be spaced to maintain proper clearance. A 20-foot wide access road would be constructed along the perimeter fence and solar panels to facilitate vehicle access and maneuverability for emergency unit vehicles. The internal access road would be graded and compacted native soils as required for construction, operations, maintenance, and emergency vehicle access.

During construction, access to the project site for construction vehicles would utilize the following roads:

- SR 111 (Caltrans-operated highways)
- Niland Avenue
- Main Street
- Cuff Road
- Wilkins Road
- Gas Line Road

At the time of final design for the project, and as a Condition of Approval of the project, the applicant will submit a final Haul Route Study that identifies what road improvements, in any, are requested by Department of Public Works and a cost estimate. The applicant would work with Department of Public Works to address the appropriate improvements and Applicant's responsibility for the cost of improvements, if required. The haul route study would include the following components:

1. Pictures and/or other documents to verify the existing conditions of the roads proposed to be utilized for haul routes
2. The haul route study shall evaluate the impact to Wilkins Road and provide recommendations on improvements, as well as quantity and cost estimates for such improvements

The County Department of Public Works will require a Roadway Maintenance Agreement, and that the Application provide financial security to maintain the road on the approved haul route study during construction. The Applicant would be responsible to repair any damages caused by construction traffic during construction and maintain them in safe conditions. The use of the proposed access roads are not otherwise anticipated to increase hazards because of design features or incompatible uses and no significant impact is identified.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.10-4 Would the project result in inadequate emergency access?

To accommodate emergency access, PV panels would be spaced to maintain proper clearance. A 20-foot wide access road would be constructed along the perimeter fence and solar panels to facilitate vehicle access and maneuverability for emergency unit vehicles. The internal access road would be graded and compacted (native soils) as required for construction, operations, maintenance, and emergency vehicle access. The access and service roads would also have turnaround areas at any dead-end to allow clearance for fire trucks per fire department standards (70 feet by 70 feet and 20-foot-wide access road). The width in-between solar arrays shall be a minimum of 9 feet. The width between solar arrays shall not be less than 10 feet. Based on this context, impacts on this issue area are considered less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact Analysis – Fiberoptic Cable

The proposed project includes the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation. The installation process involves aerial stringing of the fiber optic cable between existing transmission poles. No new transmission structures would be required to install the fiberoptic cable. The installation of the fiberoptic cable would not require a substantial number of heavy construction equipment or vehicle trips. Average daily traffic would be less than the average daily traffic required for construction of the solar energy facility and gen-tie line. Based on these considerations, the fiberoptic cable would not result in a significant impact related to possible safety hazards, or possible conflicts with adopted policies, plans, or programs. A less than significant impact is identified and no mitigation is required.

3.10.4 Decommissioning/Restoration and Residual Impacts

Decommissioning/Restoration

This section included an analysis of construction traffic for the proposed project. As presented above, construction traffic would not result in a significant impact on any of the project area roadway segments or intersections because of the low volume of traffic. A similar scenario would occur during the decommissioning and site restoration stage for the project. Average daily traffic would be similar to or less than the average daily traffic required for construction. Similarly, the decommissioning activities would not result in a significant impact related to possible safety hazards, or possible conflicts with adopted policies, plans, or programs as the decommissioning and subsequent restoration would revert the project site to the existing condition. Therefore, decommissioning and restoration of the project site would not generate traffic resulting in a significant impact on the circulation network. A less than significant impact is identified and no mitigation is required.

Residual

The construction and operation of the proposed project would not result in direct impacts on intersections, roadway segments, and freeway segments. Therefore, less than significant impacts have been identified. No mitigation is required and no residual unmitigated impacts would occur with implementation of the project.

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3.11 Utilities/Service Systems

This section includes an evaluation of potential impacts for identified Utilities/Service Systems that could result from implementation of the project. Utilities/Service Systems include wastewater treatment facilities, stormwater drainage facilities, water supply and treatment, and solid waste disposal. The impact analysis provides an evaluation of potential impacts to Utilities/Service Systems based on criteria derived from CEQA Guidelines in conjunction with actions proposed in Chapter 2, Project Description. Development Design & Engineering prepared the *Water Supply Assessment* (WSA) for the Wister Solar Development Project. This report is included in Appendix L of this EIR.

The IS/NOP prepared for this EIR determined that impacts with regards to solid waste disposal, storm drainage, and wastewater treatment would be less than significant.

Solid waste generation would be minor for the construction and operation of the project. Solid waste will be disposed of using a locally-licensed waste hauling service, most likely Allied Waste. There are over 20 active solid waste facilities listed in Imperial County in the CalRecycle database. Trash would likely be hauled to the Niland Solid Waste Site (13-AA-0009) located in Niland. The Niland Solid Waste Site has approximately 318,669 cubic yards of remaining capacity and is estimated to remain in operation through 2056 (CalRecycle n.d.). Therefore, there is ample landfill capacity in the County to accommodate the minor amount of solid waste generated by construction and operation of the project.

The project does not require expanded or new stormwater drainage facilities (other than on-site retention areas and earthen drainage channels) because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events. Water from solar panel washing would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious.

3.11.1 Environmental Setting

Groundwater

The proposed project is located within the East Salton Sea Basin, which includes the Chocolate Mountains and the northeastern margin of the Imperial Valley. The groundwater storage capacity of the East Salton Sea Basin was estimated at 360,000 acre-feet. Groundwater usage in the East Salton Sea Basin is limited due to generally poor water quality and limited inhabitants. Extraction rates for the East Salton Sea Basin were last estimated in 1952 at 6 acre-feet/year, which is 3 percent of the estimated recharge rate of 200 acre-feet/year. Limited development in the East Salton Sea Basin suggests that current extraction rates are similar. However, a lack of recent data limits the ability update this estimate. Furthermore, surface water from the Colorado River is conveyed into the Imperial Valley through a network of canals, laterals, and reservoirs, which has further reduced the need to develop groundwater resources. Groundwater in the East Salton Sea Basin is present in alluvial aquifers at depths up to several hundred feet, and with generally high transmissivities (Appendix L of this EIR).

At the project site, groundwater may also be present in an alluvial aquifer 40-50 feet below ground surface (bgs). Historically, groundwater recharge was significant in the vicinity of the earthen lined Coachella Canal. The replacement of the canal with a concrete lined channel has greatly reduced recharge to the adjacent alluvial aquifers. Near the project site, the Coachella Canal was concrete lined in the late 2000s. The East Highline Canal remains earthen-lined, which likely leads to recharge into the shallow alluvial aquifers near the project site. Recharge from precipitation is generally limited

due to low precipitation rates and high evaporation potential. Recharge rates may be higher in the Chocolate Mountains due to higher precipitation rates at higher elevations (4-6 inches/year). Recharge events are likely limited to larger storm events, which may generate runoff and seepage along ephemeral channels. Recharge rates from precipitation were estimated at 0.019 inches/year.

3.11.2 Regulatory Setting

This section identifies and summarizes laws, policies, and regulations that are applicable to the project.

State

Senate Bill 610

With the introduction of SB 610, any project under CEQA shall provide a WSA if:

- The project meets the definition of the Water Code Section 10912:

  For the purposes of this part, the following terms have the following meanings:

  (a) ‘‘Project’’ means any of the following:

  (1) A proposed residential development of more than 500 dwelling units.

  (2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

  (3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

  (4) A proposed hotel or motel, or both, having more than 500 rooms.

  (5) 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.

  (6) A mixed-use project that includes one or more of the projects specified in this subdivision.

  (7) 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.

  (b) If a public water system has fewer than 5,000 service connections, then ‘‘project’’ means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system’s existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system’s existing service connections.

California Water Code

Water Code Sections 10656 and 10657 restrict state funding for agencies that fail to submit their urban water management plan to the Department of Water Resources. In addition, Water Code Section 10910 describes the WSA that must be undertaken for projects referred under PRC Section 21151.9, including an analysis of groundwater supplies. Water agencies are given 90 days from the start of

consultation in which to provide a WSA to the CEQA lead agency. Water Code Section 10910 also specifies the circumstances under which a project for which a WSA was once prepared would be required to obtain another assessment. Water Code Section 10631 directs that contents of the urban water management plans include further information on future water supply projects and programs and groundwater supplies.

Water Quality Control Plan for the Colorado River Basin

The Water Quality Control Plan for the Colorado River Basin (or Basin Plan) is designed to preserve and enhance water quality in the Region and to protect the beneficial uses of all regional waters for the benefit of present and future generations. The Basin Plan contains the Region's beneficial uses for ground and surface waters, water quality objectives to protect beneficial uses, and implementation programs to achieve water quality objectives. The Basin Plan fulfills state and federal statutory requirements for water quality planning, thereby preserving and protecting ground and surface waters of the Colorado River Basin Region.

Local

County of Imperial General Plan

The Imperial County General Plan provides goals, objectives, policies, and programs regarding the preservation and use of water. Table 3.11-1 provides a consistency analysis of the applicable Imperial County General Plan goals and objectives from the Conservation and Open Space Element, and Renewable Energy and Transmission Element, as they relate to the proposed project. While the EIR analyzes the project's consistency with the General Plan pursuant to CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

Table 3.11-1. County of Imperial General Plan Consistency Analysis – Water Service

Applicable General Plan Goals and Policies	Consistency Determination	Analysis
Conservation and Open Space Element		
Preservation of Water Resources, Goal 6: The County will conserve, protect, and enhance water resources in the County.	Consistent	Water will be required during construction, operation, and decommissioning/restoration of the project. During construction, operation, and decommissioning of the project, non-potable water would be obtained from an on-site groundwater well.

Table 3.11-1. County of Imperial General Plan Consistency Analysis – Water Service

Applicable General Plan Goals and Policies	Consistency Determination	Analysis
Renewable Energy and Transmission Element		
Objective 1.6: Encourage the efficient use of water resources required in the operation of renewable energy generation facilities.	Consistent	Water will be required during construction, operation, and decommissioning/restoration of the project. During construction, operation, and decommissioning of the project, non-potable water would be obtained from a proposed on-site groundwater well. As described in Chapter 2, Project Description, the construction of a groundwater well requires approval of a Conditional Use Permit (CUP). Approval of the CUP would be contingent upon the availability of groundwater to serve the project and ability to recharge the aquifer so that groundwater supplies are not substantially decreased by the proposed project.

Source: County of Imperial 1993

3.11.3 Impacts and Mitigation Measures

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to utilities/service systems are considered significant if any of the following occur:

Water Supply

- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed

As stated previously, it was determined through the preparation of the IS/NOP that impacts with regards to solid waste disposal and policies, storm water, and wastewater treatment would be less than significant. Therefore, these issue areas will not be discussed further. Impacts associated with water quality are discussed in Section 3.8, Hydrology/Water Quality, of this EIR.

Methodology

Project-specific data was used to calculate the project's water consumption during construction and at build-out collectively ("operational").

Impact Analysis – Solar Energy Facility and Gen-Tie Line

Impact 3.11-1 Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Construction

The proposed project is anticipated to take approximately 6-9 months from the commencement of the construction process to complete. Construction water needs would be limited to earthwork, soil conditioning, dust suppression, and compaction efforts. As shown in Table 3.11-2, the proposed project would require approximately 10.22 acre-feet of water during construction. The proposed project may involve the construction of a groundwater well and use of groundwater for construction. As described in Chapter 2, Project Description, the construction of a groundwater well requires approval of a Conditional Use Permit (CUP). Approval of the CUP would be contingent upon the availability of groundwater to serve the project and ability to recharge the aquifer so that groundwater supplies are not substantially decreased by the proposed project.

Table 3.11-2. Construction Water Demand

Construction Phase	Water Demand Per Day (Gallons)	Water Demand (Acre Feet Per Day)
Phase 1	900,000	2.76
Phase 2	2,130,000	6.54
Phase 3	300,000	0.92
Total	3,330,000	10.22

Source: Appendix L of this EIR

Operations and Maintenance

Water would be required for periodic cleaning of the solar PV panels, dust suppression, and for the on-site fire tank. It is anticipated that the solar PV panels will be washed up to four times per year to ensure optimum solar absorption by removing dust particles and other buildup. As shown in Table 3.11-3, the proposed project would require approximately 1.37 acre feet annually (AFY) during operations. During operations, the project would utilize groundwater from a proposed on-site groundwater well.

Table 3.11-3. Operational and Decommissioning Water Demand

	Water Demand (Acre Feet Per Year)	Water Demand (Acre Feet – 30 Year Project Life)
Solar panel washing, dust suppression and fire tank water	1.37	41.1
Decommissioning	5	5

Source: Appendix L of this EIR

Decommissioning

If at the end of the PPA term, no contract extension is available for a power purchaser, no other buyer of the energy emerges, or there is no further funding of the project, the project will be decommissioned and dismantled. As shown in Table 3.11-3, the proposed project would require approximately 5 AFY during decommissioning.

Total Annual Water Demand

According to the WSA prepared by Development Design & Engineering (Appendix L of this EIR), the anticipated water demand for construction, operation, and decommissioning of the project is estimated to be 56.32 AF, for an annualized demand of 1.88 AFY for the 30-year project life (Table 3.11-4).

The groundwater storage capacity of the East Salton Sea Basin was estimated at 360,000 acre-feet. Groundwater usage in the East Salton Sea Basin is limited due to generally poor water quality and limited inhabitants. Extraction rates for the East Salton Sea Basin were last estimated in 1952 at 6 acre-feet/year, which is 3 percent of the estimated recharge rate of 200 acre-feet/year. Based on the amount of groundwater within the basin and the recharge rate of 200 acre-feet/year the project supply is able to meet the project demand of the project (Appendix L of this EIR). Therefore, the proposed project would have sufficient water supplies available to serve the project from existing entitlements and resources, and impacts would be less than significant.

Table 3.11-4. Amortized Water Demand

Phase	Water Demand (Acre Feet Per Year – for 30 Years)
Construction	10.22
Operational	41.1
Decommissioning	5
Total	56.32
Amortized (30 years)	1.88

Source: Appendix L of this EIR

Mitigation Measure(s)

No mitigation measures are required.

Impact Analysis – Fiberoptic Cable

The proposed project includes the installation of approximately two miles of fiber optic cable to connect the proposed substation to the existing Niland Substation. The amount of water required to install the fiberoptic cable is included in the overall water estimates for construction and operations of the solar energy facility. As described above, based on the amount of groundwater within the basin and the recharge rate of 200 acre-feet/year the project supply is able to meet the project demand of the project. This is considered a less than significant impact.

3.11.4 Decommissioning/Restoration and Residual Impacts

Decommissioning/Restoration

As shown in Table 3.11-3, the proposed project would require approximately 5 AFY during decommissioning. This water need would be less than what is required for construction and operation of the project site. Therefore, a less than significant impact is identified and no mitigation is required.

Residual

The project would not result in significant impacts to the water supply of Imperial County; therefore, no mitigation is required. The proposed project would not result in residual impacts.

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4 Analysis of Long-Term Effects

4.1 Growth-Inducing Impacts

In accordance with Section 15126.2(d) of CEQA Guidelines, an EIR must:

> *"discuss 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. Included in this are projects which would remove obstacles to population growth ... Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."*

Projects promoting direct growth will impose burdens on a community by directly inducing an increase in population or resulting in the construction of additional developments in the same area. For example, projects involving the expansion, modifications, or additions to infrastructure, such as sewer, water, and roads, could have the potential to directly promote growth by removing existing physical barriers or allowing for additional development through capacity increases. New roadways leading into a previously undeveloped area directly promote growth by removing previously existing physical barriers to development and a new wastewater treatment plant would allow for further development within a community by increasing infrastructure capacity. Because these types of infrastructure projects directly serve related projects and result in an overall impact to the local community, associated impacts cannot be considered isolated. Indirect growth typically includes substantial new permanent employment opportunities and can result from these aforementioned modifications.

The proposed project is located within the unincorporated area of Imperial County and it does not involve the development of permanent residences that would directly result in population growth in the area. The unemployment rate in Imperial County, as of September 2019 (not seasonally adjusted), was 20.7 percent (State of California Employment Development Department 2019). The applicant expects to utilize construction workers from the local and regional area, a workforce similar to that involved in the development of other utility-scale solar facilities. Based on the unemployment rate, and the availability of the local workforce, construction of the proposed project would not have a growth-inducing effect related to workers moving into the area and increasing the demand for housing and services.

Once construction is completed, the facility would be remotely operated, controlled and monitored and with no requirement for daily on-site employees. Security personnel may conduct unscheduled security rounds and would be dispatched to the project site in response to a fence breach or other alarm. It is anticipated that maintenance of the facilities would require minimal site presence to perform periodic visual inspections and minor repairs. On intermittent occasions, the presence of additional workers may be required for repairs or replacement of equipment and panel cleaning; however, because of the nature of the facilities, such actions would likely occur infrequently. Overall, minimal maintenance requirements are anticipated. The proposed project would not result in substantial population growth, as the number of employees required to operate and maintain the facility is minimal.

While the proposed project would contribute to energy supply, which indirectly supports population growth, the proposed project is a response to the state's need for renewable energy to meet its Renewable Portfolio Standard, and while it would increase the availability of renewable energy, it would also replace existing sources of non-renewable energy. Unlike a gas-fired power plant, the proposed project is not being developed as a source of base-load power in response to growth in demand for electricity. The power generated would be added to the state's electricity grid with the intent that it would displace fossil fueled power plants and their associated environmental impacts, consistent with the findings and declarations in SB 2 that a benefit of the Renewable Portfolio Standard is displacing fossil fuel consumption within the state. The project is being proposed in response to state policy and legislation promoting development of renewable energy.

The proposed project would supply energy to accommodate and support existing demand and projected growth, but the energy provided by the project would not foster any new growth because (1) the additional energy would be used to ease the burdens of meeting existing statewide energy demands within and beyond the area of the project site; (2) the energy would be used to support already-projected growth; or, (3) the factors affecting growth are so diverse that any potential connection between additional energy production and growth would necessarily be too speculative and uncertain to merit further analysis.

Under CEQA, an EIR should consider potentially significant energy implications of a project (CEQA Guidelines Appendix F(II); PRC Section 21100(b)(3)). However, the relationship between the proposed project's increased electrical capacity and the growth-inducing impacts outside the surrounding area is too speculative and uncertain to warrant further analysis. When a project's growth-inducing impacts are speculative, the lead agency should consider 14 CCR §15145, which provides that, if an impact is too speculative for evaluation, the agency should note this conclusion and terminate discussion of the impact. As the court explained in Napa Citizens for Honest Gov't v. Napa County Board of Supervisors, 91 Cal. App.4th 342, 368: "Nothing in the Guidelines, or in the cases, requires more than a general analysis of projected growth" *Napa Citizens, 91* CA4th at 369. The problem of uncertainty of the proposed project's growth-inducing effects cannot be resolved by collection of further data because of the diversity of factors affecting growth.

While this document has considered that the proposed project, as an energy project, might foster regional growth, the particular growth that could be attributed to the proposed project is unpredictable, given the multitude of variables at play, including uncertainty about the nature, extent, and location of growth and the effect of other contributors to growth besides the proposed project. No accurate and reliable data is available that could be used to predict the amount of growth outside the area that would result from the proposed project's contribution of additional electrical capacity. The County of Imperial has not adopted a threshold of significance for determining when an energy project is growth-inducing. Further evaluation of this impact is not required under CEQA.

Additionally, the project would not involve the development of any new roadways, new water systems, or sewer; and thus, the project would not further facilitate additional development into outlying areas. For these reasons, the proposed project would not be growth-inducing.

4.2 Significant Irreversible Environmental Changes

In accordance with CEQA Guidelines Section 15126.2(c), an EIR must identify any significant irreversible environmental changes that would be caused by implementation of the proposed project being analyzed. Irreversible environmental changes may include current or future commitments to the use of non-renewable resources or secondary growth-inducing impacts that commit future generations to similar uses.

Energy resources needed for the construction of the proposed project would contribute to the incremental depletion of renewable and non-renewable resources. Resources, such as timber, used in building construction are generally considered renewable and would ultimately be replenished. Non-renewable resources, such as petrochemical construction materials, steel, copper, lead and other metals, gravel, concrete, and other materials, are typically considered finite and would not be replenished over the lifetime of the project. Thus, the project would irretrievably commit resources over the anticipated 25-year life of the project.

At the end of the project's operation term, the applicant may determine that the project should be decommissioned and deconstructed. Should the project be decommissioned, the project applicant is required to restore land to its pre-project state. Consequently, some of the resources on the site could potentially be retrieved after the site has been decommissioned. Concrete footings, foundations, and pads would be removed and recycled at an off-site location. All remaining components would be removed, and all disturbed areas would be reclaimed and recontoured. The applicant anticipates using the best available recycling measures at the time of decommissioning.

Implementation and operation of the proposed project would promote the use of renewable energy and contribute incrementally to the reduction in demand for fossil fuel use for electricity-generating purposes. Therefore, the incremental reduction in fossil fuels would be a positive effect of the commitment of nonrenewable resources. Additionally, the project is consistent with the state's definition of an "eligible renewable energy resource" in Section 399.12 of the California Public Utilities Code and the definition of "in-state renewable electricity generation facility" in Section 25741 of the California PRC.

4.3 Unavoidable Adverse Impacts

In accordance with CEQA Guidelines Section 15126(b), EIRs must include a discussion of significant environmental effects that cannot be avoided if the proposed project is implemented. The impact analysis, as detailed in Section 3 of this EIR, concludes that no unavoidable significant impacts were identified. Where significant impacts have been identified, mitigation measures are proposed, that when implemented, would reduce the impact level to less than significant.

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5 Cumulative Impacts

The CEQA Guidelines (Section 15355) define a cumulative impact as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." The CEQA Guidelines [Section 15130(a)(1)] further states that "an EIR should not discuss impacts which do not result in part from the project."

Section 15130(a) of the CEQA Guidelines provides that "[A]n EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable..." Cumulatively considerable, as defined in Section 15065(a)(3), "means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."

An adequate discussion of significant cumulative impacts requires either: (1) "a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or (2) "a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact."

The CEQA Guidelines recognize that cumulative impacts may require mitigation, such as new rules and regulations that go beyond project-by-project measures. An EIR may also determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The Lead Agency must identify facts and analysis supporting its conclusion that the contribution will be rendered less than cumulatively considerable (CEQA Guidelines Section 15130(a)(3)).

This EIR evaluates the cumulative impacts of the project for each resource area, using the following steps:

1. Define the geographic and temporal scope of cumulative impact analysis for each cumulative effects issue, based on the project's reasonably foreseeable direct and indirect effects.
2. Evaluate the cumulative effects of the project in combination with past and present (existing) and reasonably foreseeable future projects and, in the larger context of the Imperial Valley.
3. Evaluate the project's incremental contribution to the cumulative effects on each resource considered in Chapter 3, Environmental Analysis. When the project's incremental contribution to a significant cumulative impact is considerable, mitigation measures to reduce the project's "fair share" contribution to the cumulative effect are discussed, where required.

5.1 Geographic Scope and Timeframe of the Cumulative Effects Analysis

The geographic area of cumulative effects varies by each resource area considered in Chapter 3. For example, air quality impacts tend to disperse over a large area, while traffic impacts are typically more localized. Similarly, impacts on the habitats of special-status wildlife species need to be considered within its range of movement and associated habitat needs.

The analysis of cumulative effects in this EIR considers a number of variables including geographic (spatial) limits, time (temporal) limits, and the characteristics of the resource being evaluated. The geographic scope of each analysis is based on the topography surrounding the project site and the natural boundaries of the resource affected, rather than jurisdictional boundaries. The geographic scope of cumulative effects will often extend beyond the scope of the direct effects of a project, but not beyond the scope of the direct and indirect effects of that project.

The cumulative development scenario includes projects that extend through year (2030), which is the planning horizon of the County of Imperial General Plan. Because of uncertain development patterns that are far in the future, it is too speculative to accurately determine the type and quantity of cumulative projects beyond the planning horizon of the County's adopted County General Plan. Evaluating the proposed project's cumulative impacts when future facility decommissioning occurs is highly speculative because decommissioning is expected to occur in 20 to 25 years' time. Therefore, cumulative impacts during decommissioning are speculative for detailed consideration in this analysis.

5.2 Projects Contributing to Potential Cumulative Impacts

The CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the projects are to be considered: the use of a list of past, present, and probable future projects (the "list approach") or the use of adopted projections from a general plan, other regional planning document, or certified EIR for such a planning document (the "plan approach").

For this EIR, the list approach has been utilized to generate the most reliable future projections of possible cumulative impacts. When the impacts of the project are considered in combination with other past, present, and future projects to identify cumulative impacts, the other projects considered may also vary depending on the type of environmental impacts being assessed. As described above, the general geographic area associated with different environmental impacts of the project defines the boundaries of the area used for compiling the list of projects considered in the cumulative impact analysis. Figure 5-1 provides the general location for each of these projects in relation to the project site.

5.3 Cumulative Impact Analysis

This cumulative impact analysis utilizes an expanded list method (as defined under CEQA) and considers environmental effects associated with those projects identified in Table 5-1 in conjunction with the impacts identified for the project in Chapter 3 of this EIR. Table 5-1 includes projects known at the time of release of the NOP of the Draft EIR, as well as additional projects that have been proposed since the NOP date. Figure 5-1 provides the general location for each of these projects in relation to the project site.

Figure 5-1. Cumulative Projects

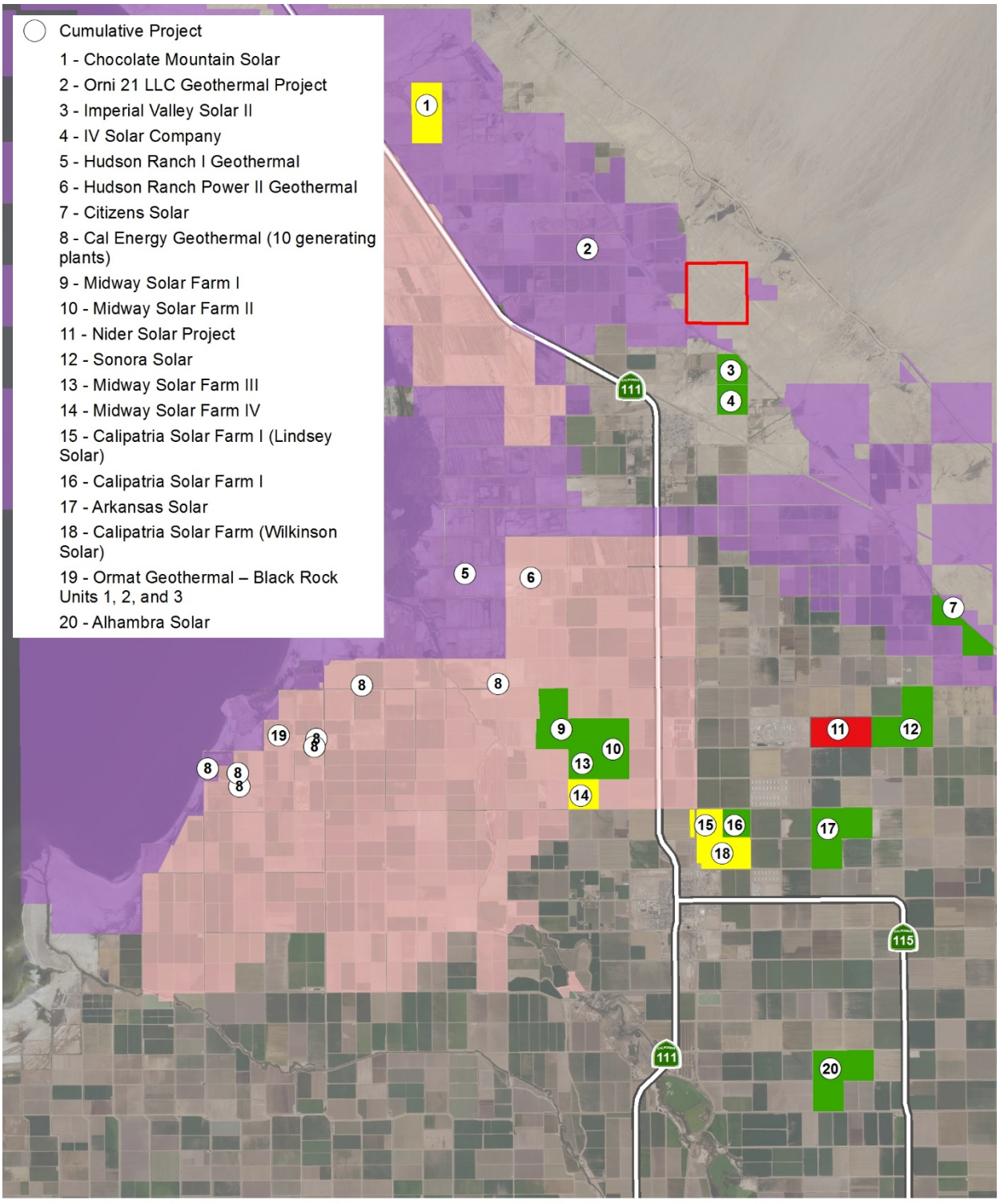

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Table 5-1. Projects Considered in the Cumulative Impact Analysis

Map Label[1]	Project Name	Project Type	Distance from Wister Project Site	Size (acres)	Capacity (MW)	Status[2]
1	Chocolate Mountain Solar	PV Solar Facility	Approximately 4.5 miles northwest	320	49.9	Approved – Not Built
2	Orni 21 LLC Geothermal Project	Geothermal Power Plant/ Well Field	Approximately 1.6 miles west-northwest	195	49.9	Proposed/Under Construction
3	Imperial Valley Solar II	PV Solar Facility	Approximately 0.5 mile south	146	20	Operational
4	IV Solar Company	PV Solar Facility	Approximately 1.0 mile south	123	23	Operational
5	Hudson Ranch I Geothermal	Geothermal Power Plant	Approximately 5.5 miles southwest	65	49.9	Operational
6	Hudson Ranch Power II Geothermal	Geothermal Power Plant	Approximately 5.0 miles southwest	52	49.9	Approved
7	Citizens Solar	PV Solar Facility	Approximately 5.6 miles southeast	159	30	Operational
8	Cal Energy Geothermal – 10 generating plants	Geothermal Power Plants	Approximately 6.7 to 10.7 miles southwest, along the Salton Sea	N/A	345	Operational
9	Midway Solar Farm I	PV Solar Facility	Approximately 6.4 miles southwest	480	50	Operational
10	Midway Solar Farm II	PV Solar Facility	Approximately 6.6 miles southwest	803	155	Operational
11	Nider Solar Project	PV Solar Facility	Approximately 6.8 miles southeast	320	100	Pending Entitlement
12	Sonora Solar	PV Solar Facility	Approximately 7.07 miles southeast	488	50	Operational
13	Midway Solar Farm III	PV Solar Facility	Approximately 7.33 miles south-southwest	160	20	Operational
14	Midway Solar Farm IV	PV Solar Facility	Approximately 7.27 miles south-southwest	160	15	Approved – Not Built
15	Calipatria Solar Farm I (Lindsey Solar)	PV Solar Facility	Approximately 7.98 miles south.	148	20	Approved – Not Built

Table 5-1. Projects Considered in the Cumulative Impact Analysis

Map Label[1]	Project Name	Project Type	Distance from Wister Project Site	Size (acres)	Capacity (MW)	Status[2]
16	Calipatria Solar Farm I	PV Solar Facility	Approximately 7.98 miles south	159	20	Operational
17	Arkansas Solar	PV Solar Facility	Approximately 8.15 miles south-southeast	481	50	Operational
18	Calipatria Solar Farm (Wilkinson Solar)	PV Solar Facility	Approximately 8.53 miles south	302	30	Approved – Not Built
19	Ormat Geothermal – Black Rock Units 1, 2, and 3	Geothermal Power Plant	Approximately 9.62 southwest	160	159	Approved – Not Built
20	Alhambra Solar	PV Solar Facility	Approximately 12.2 miles south-southeast	482	50	Operational

1 – See Figure 5-1 for cumulative project location.

2 – Project status based on information provided by County staff and on Imperial County Planning & Development Service's RE Geographic Information System Mapping Application (http://icpds.maps.arcgis.com/apps/Viewer/index.html?appid=c6fd31272e3d42e1b736ce8542b994ae). Accessed on November 6, 2019.

IID – Imperial Irrigation District; MW – megawatts; PV – photovoltaic

5.3.1 Aesthetics and Visual Resources

The cumulative study area for projects considered in the visual resources cumulative impact analysis considers a 5-mile radius from the project site. Views beyond 5 miles are obstructed by a combination of the flat topography coupled with the Earth's curvature. The short-term visual impacts of the project would be in the form of general construction activities including grading, use of construction machinery, and installation of the transmission poles and stringing of transmission lines, but would only be available to a very limited amount of people and would have to be in relative close proximity to the project site. Longer-term visual impacts of the project would be in the form of the presence of solar array grids, an electrical distribution and transmission system, and substation.

As provided in Section 3.2, Aesthetics and Visual Resources, the existing visual character of the project site and the quality of views in terms of visibility beyond the site would not be substantially altered. Views toward the project site are rare and not readily available to the general public. The proposed project would be absorbed into the broader landscape that already includes agricultural development, electricity transmission, geothermal power plants, IID facilities and infrastructure, and, 0.5 mile to the south, an existing utility-scale solar facility. The project would not obstruct or substantially alter views to desert lands and mountains to the north and east of the site.

The visual changes associated with the project would be located in a remote area viewed by a minimal number of people, the project site is not located within scenic vistas, and is not readily viewable from any frequently travelled interstates or scenic highways. Additionally, with the exception of the transmission line, the project's structural features would generally be less than 15 feet in height and, therefore, would not substantially disrupt background views of mountains to the north and east. Further, the project site would be restored to its existing condition following the decommissioning of the solar uses. As a result, although the visual character of the project site would change from undeveloped to one with developed characteristics, a less than significant impact associated with the proposed project has been identified.

Development of the proposed project in conjunction with the cumulative projects identified in Table 5-1 will gradually change the visual character of this portion of the Imperial Valley. However, projects located within private lands and/or under the jurisdiction of the County of Imperial are being designed in accordance with the County of Imperial's General Plan and Land Use Ordinance, which includes policies to protect visual resources in the County.

Finally, all projects listed in Table 5-1 would not produce a substantial amount of light and glare, as no significant source of light or glare is proposed, or the project will otherwise comply with the County lighting ordinance, as would all other related projects. Based on these considerations, there would be no significant cumulatively considerable aesthetic impact, and cumulative aesthetic impacts would be less than significant.

5.3.2 Air Quality

Imperial County is used as the geographic scope for analysis of cumulative air quality impacts. As shown in Table 5-1, many of the cumulative projects are large-scale renewable energy generation projects, where the main source of air emissions would be generated during the construction phases of these projects; however, there would also be limited operational emissions associated with operations and maintenance activities for these facilities. Additionally, a majority of the projects listed in Table 5-1 are already constructed and operational. Therefore the potential for a cumulative,

short-term air quality impact as a result of construction activities is anticipated to be less than significant.

Currently, the SSAB is either in attainment or unclassified for all federal and state air pollutant standards with the exception of 8-Hour O_3, PM_{10}, and $PM_{2.5}$. Imperial County is classified as a "serious" nonattainment area for PM_{10} for the NAAQS. On November 13, 2009, EPA published Air Quality Designations for the 2006 24-Hour Fine Particle ($PM_{2.5}$) NAAQS wherein Imperial County was listed as designated nonattainment for the 2006 24-hour $PM_{2.5}$ NAAQS. However, the nonattainment designation for Imperial County is only for the urban area within the County and it has been determined that the proposed project is not located within the nonattainment boundaries for $PM_{2.5}$.

The AQAP for the SSAB, through the implementation of the AQMP and SIP for PM_{10}, sets forth a comprehensive program that will lead the SSAB into compliance with all federal and state air quality standards. With respect to PM_{10}, the ICAPCD implements Regulation VIII – Fugitive Dust Rules, to control these emissions and ultimately lead the basin into compliance with air standards, consistent with the AQAP. Within Regulation VIII are Rules 800 through 806, which address construction and earthmoving activities, bulk materials, carry-out and track-out, open areas, paved and unpaved roads, and conservation management practices. Best Available Control Measures to reduce fugitive dust during construction and earthmoving activities include but are not limited to:

- Phasing of work in order to minimize disturbed surface area;
- Application of water or chemical stabilizers to disturbed soils;
- Construction and maintenance of wind barriers; and
- Use of a track-out control device or wash down system at access points to paved roads.

Compliance with Regulation VIII is mandatory on all construction sites, regardless of size. However, compliance with Regulation VIII does not constitute mitigation under the reductions attributed to environmental impacts. In addition, compliance for a project includes: (1) the development of a dust control plan for the construction and operational phase; and (2) notification to the air district is required 10 days prior to the commencement of any construction activity.

Construction

The proposed project would generate air emissions due to vehicle and dust emissions associated with construction activities. Similar effects would also be realized upon site decommissioning, which would be carried out in conjunction with the project's restoration plan, and subject to applicable ICAPCD standards. Likewise, the other cumulative projects that are approved, but not yet built (Chocolate Mountain Solar, Midway Solar Farm IV, Calipatria Solar Farm I [Lindsey Solar], and Calipatria Solar Farm [Wilkinson Solar] or pending entitlement (Nider Solar Project) identified in Table 5-1 would result in the generation of air emissions during construction activities.

With respect to the proposed project, during the construction and decommissioning phases, the project would generate PM_{10}, $PM_{2.5}$, ROG, CO, and NO_X emissions during each active day of construction.

As discussed in Section 3.3, Air Quality, the project would not result in a significant increase in CO, ROG, and NO_X that would exceed ICAPCD thresholds.

However, the project's impact could be cumulatively considerable because: (1) portions of the SSAB are nonattainment already (PM_{10} and $PM_{2.5}$), although mitigated by ICAPCD Regulations; and, (2) project construction would occur on most days, including days when O_3 already in excess of state

standards. Additionally, the effects could again be experienced in the future during decommissioning in conjunction with site restoration.

The proposed project, in conjunction with the construction of other cumulative projects as identified in Table 5-1 (Nider Solar Project, Chocolate Mountain Solar, Midway Solar Farm IV, Calipatria Solar Farm I [Lindsey Solar], and Calipatria Solar Farm [Wilkinson Solar]), could result in a cumulatively considerable increase in the generation of PM_{10} and NO_x; however, like the proposed project, cumulative projects would be subject to mitigation pursuant to County ICAPCD's Regulations and Rules, and the cumulative impact would be reduced to a level less than significant through compliance with these measures. Because the project will be required to implement measures consistent with ICAPCD regulations designed to alleviate the cumulative impact associated with PM_{10}, the proposed project's contribution is rendered less than cumulatively considerable and is therefore, less than significant.

Operation

As the proposed project would have no major stationary emission sources and would require minimal vehicular trips, operation of the proposed solar facility would result in substantially lower emissions than project construction. The project's operational emissions would not exceed the Tier I thresholds; therefore, the impact would be less than significant. Operational impacts of other renewable energy facilities identified in Table 5-1 would also be similar. Although these cumulative projects generally involve large areas, their operational requirements are very minimal, requiring minimal staff or use of machinery or equipment that generate emissions. Further, alternative energy projects, such as the project, would assist attainment of regional air quality standards and improvement of regional air quality by providing clean, renewable energy sources. Consequently, the projects would provide a positive contribution to the implementation of applicable air quality plan policies and compliance with EO S-3-05.

However, from a cumulative air quality standpoint, the potential cumulative impact associated with the generation of PM_{10} and $PM_{2.5}$ emissions during operation of the cumulative projects is a consideration because of the fact that Imperial County is classified as a "serious" non-attainment area for PM_{10} and a "moderate" non-attainment area for 8-hour O_3 for the NAAQS and non-attainment for $PM_{2.5}$ for the urban areas of Imperial County. As previously indicated, the project is not located within the nonattainment boundaries for $PM_{2.5}$. The project's operational contribution to PM_{10} is below a level of significance. As with the construction phases, the cumulative projects would be required to comply with ICAPCD's Regulation VIII for dust control (Regulation VIII applies to both the construction and operational phases of projects). As a result, the ICAPCD would require compliance with the various dust control measures and, in addition be required to prepare and implement operational dust control plans as approved by the ICAPCD, which is a component of ICAPCD's overall framework of the AQAP for the SSAB, which sets forth a comprehensive program that will lead the SSAB into compliance with all federal and state air quality standards. Therefore, the project would not contribute to long-term cumulatively considerable air quality impacts and the project would not result in cumulatively significant air quality impacts, and cumulative impacts would be less than significant.

5.3.3 Biological Resources

The geographic scope for considering cumulative impacts on biological resources includes the Imperial Valley and related biological habitats. Table 5-1 lists the projects considered for the biological resources cumulative impact analysis.

In general terms, in instances where a potential impact could occur, CDFW and USFWS have promulgated a regulatory scheme that limits impacts on these species. The effects of the project would be rendered less than significant through mitigation requiring compliance with all applicable regulations that protect plant, fish, and animal species, as well as waters of the U.S. and state. Other cumulative projects would also be required to avoid impacts on special-status species and/or mitigate to the satisfaction of the CDFW and USFWS for the potential loss of habitat. As described in Section 3.4, Biological Resources, the project has the potential to result in impacts on biological resources. These impacts are generally focused on potential construction-related effects to burrowing owl, bird species, and bats (foraging only).

Burrowing Owls are protected by the CDFW mitigation guidelines for burrowing owl (CDFW 2012) and Consortium guidance (1993), which require a suite of mitigation measures to ensure direct effects to burrowing owls during construction activities are avoided and indirect effects through burrow destruction and loss of foraging habitat are mitigated at prescribed ratios. Mitigation measures identified in Section 3.4, Biological Resources, contain these requirements thereby minimizing potential impacts on these species to a less than significant level. Additionally, as provided in Section 3.4, Biological Resources, special-status bird species have a potential to be present. In addition, several common bird species could nest on the project site. As a result of project-related construction activities, one or more of these species could be harmed. However, with the implementation of mitigation as identified in Section 3.4, Biological Resources, these impacts would be reduced to a level of less than significant. Similarly, the cumulative projects within the geographic scope of the project would be required to comply with the legal framework as described above. Based on these considerations, impacts on biological resources would not be cumulatively considerable.

As with the proposed project, each of the cumulative projects would be required to provide mitigation for impacts on biological resources. The analysis below is conducted qualitatively and in the context that the cumulative projects would be subject to a variety of statutes and administrative frameworks that require mitigation for impacts on biological resources.

Birds listed at 50 CFR 10.3 are protected by the MBTA (16 USC 703 et seq.), a Federal statute that implements treaties with several countries on the conservation and protection of Birds listed at 50 CFR 10.3 are protected by the MBTA (16 USC 703 et seq.), a Federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The MBTA is enforced by USFWS. This act prohibits the killing of any migratory birds without a valid permit. Any activity which contributes to unnatural migratory bird mortality could be prosecuted under this act. With few exceptions, most birds are considered migratory under this act. Raptors and active raptor nests are protected under California FGCs 3503.5, 3503, and 3513.

The CWA and California's Porter-Cologne Water Quality Control Act provide protection for water-related biological resources by controlling pollution, setting water quality standards, and preventing jurisdictional streams, lakes, and rivers from being filled without a federal permit. Two types of jurisdictional features were documented within the BSA: USACE non-wetland Waters of the U.S. and CDFW State Waters. These drainages ultimately flow into the Salton Sea, which is considered a Traditionally Navigable Water. As such, these drainage features would likely be considered federally and state jurisdictional. Consultation will be initiated with USACE and CDFW to avoid or minimize impacts upon federally and state jurisdictional drainage features.

The proposed project would comply with these and other laws, regulations and guidelines and therefore would not contribute substantially to a cumulative biological resources impact. Similarly, the cumulative projects within the geographic scope of the proposed project will be required to comply

with the legal frameworks set forth above, as well as others, and will be required to mitigate their impacts to a less than significant level. Therefore, the project would not contribute to a cumulatively considerable impact to biological resources, and cumulative impacts would be less than significant.

5.3.4 Cultural Resources

As discussed in Section 3.5, Cultural Resources, no historical resources were identified within the project site. Therefore, the proposed project would not cause a substantial adverse change in the significant of a historical resource as defined in Section 15064.5 of the CEQA Guidelines and no impact would occur.

The potential of finding a buried archaeological site during construction is considered low. However, like all construction projects in the state, the possibility exists. This potential impact is considered significant. Implementation of Mitigation Measures CR-1 and CR-2 would reduce potential impacts associated with the unanticipated discovery of unknown buried archaeological resources. Implementation of Mitigation Measure CR-3 would reduce potential impacts on human remains to a level less than significant.

Future projects with potentially significant impacts on cultural resources would be required to comply with federal, state, and local regulations and ordinances protecting cultural resources through implementation of similar project-specific mitigation measures during construction. Therefore, through compliance with regulatory requirements, standard conditions of approval, and Mitigation Measures CR-1 through CR-3, the proposed project would have a less than cumulatively considerable contribution to impacts on cultural resources.

During operations and decommissioning of the project, no additional impacts on archeological resources would be anticipated because the soil disturbance would have already occurred and been mitigated during construction.

As discussed in Section 3.5, Cultural Resources, no tribes have responded that indicate the potential for traditional cultural properties or sacred sites. Therefore, the proposed project is not anticipated to cause a substantial adverse change in the significance of a tribal cultural resource, and impacts on tribal cultural resources would be less than significant. Future cumulative projects would also be required to comply with the requirements of AB 52 to determine the presence/absence of tribal cultural resources and engage in consultation to determine appropriate mitigation measures to minimize or avoid impacts on tribal cultural resources. Based on these considerations, the project would not contribute to or result in a significant cumulatively considerable impact tribal cultural resources.

5.3.5 Geology and Soils

The Imperial Valley portion of the Salton Trough physiographic province of Southern California is used as the geographic scope for the analysis of cumulative impacts on geology/soils and mineral resources. Cumulative development would result in an increase in population and development that could be exposed to hazardous geological conditions, depending on the location of proposed developments. Geologic and soil conditions are typically site specific and can be addressed through appropriate engineering practices. Cumulative impacts on geologic resources would be considered significant if the project would be impacted by geologic hazard(s) and if the impact could combine with off-site geologic hazards to be cumulatively considerable. None of the projects identified within the geographic scope of potential cumulative impacts would intersect or be additive to the project's site-specific geology and soils impacts; therefore, no cumulatively considerable effects are identified for geology/soils, and cumulative impacts would be less than significant.

Development of the proposed project, in combination with other projects in the area, has the potential to contribute to a cumulatively significant paleontological resources impact due to the potential loss of paleontological resources unique to the region. However, mitigation is included in this EIR to reduce potentially significant project impacts to paleontological resources during construction of the proposed project. Implementation of Mitigation Measure GEO-2 would ensure that the potential impacts on paleontological resources do not rise to the level of significance. Future projects with potentially significant impacts on paleontological resources would be required to comply with federal, state, and local regulations and ordinances protecting paleontological resources through implementation of similar project-specific mitigation measures during construction. Therefore, through compliance with regulatory requirements, standard conditions of approval, and Mitigation Measure GEO-2, the proposed project would have a less than cumulatively considerable contribution to impacts on paleontological resources,

5.3.6 Greenhouse Gas Emissions

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. Although the emissions of the projects alone would not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change. In turn, global climate change has the potential to result in rising sea levels, which can inundate low-lying areas; affect rainfall and snowfall, leading to changes in water supply; and affect habitat, leading to adverse effects on biological resources. SCAQMD has proposed a threshold of 3,000 $MTCO_2e$ per year, for residential and commercial projects; which was applied to the project analysis as provided in Section 3.7, Greenhouse Gases. As provided, the proposed project's CO_2 emissions would not exceed SCAQMD's threshold of 3,000 $MTCO_2e$ per year. As the project's emissions do not exceed the SCAQMD's threshold, the proposed project would not result in a cumulatively considerable impact to GHG emissions and would not conflict with the State GHG reduction targets. Other cumulative projects identified in Table 5-1 largely consist of utility-scale solar facilities. The nature of these projects is such that, like the project, they would be consistent with the strategies of the Climate Change Scoping Plan. In order to meet the AB 32 GHG emissions reduction mandate, the Scoping Plan relies on achievement of the RPS target of 33 percent of California's energy coming from renewable sources by 2020 and 50 percent by 2030. The RPS target was updated in September 2018 under SB 100 to 60 percent by 2030. The project and other similar projects are essential to achieving the RPS.

Given that the project is characterized as a renewable energy project and places emphasis on solar power generation, project operations would be almost carbon-neutral with the majority of the operational GHG emissions associated with vehicle trips. Based on these considerations, no significant long-term operational GHG impacts would occur and, therefore, project-related GHG impacts would not be cumulatively considerable.

5.3.7 Hydrology and Water Quality

Table 5-1 lists the projects considered for the hydrology and water quality cumulative impact analysis. The geographic scope for considering cumulative hydrology and water quality impacts is the Imperial Valley Hydrologic Unit as defined by the Colorado Basin RWQCB Basin Plan.

The construction of the project is expected to result in short-term water quality impacts. Compliance with the SWRCB's NPDES general permit for activities associated with construction (2009-0009-DWQ) would reduce water quality impacts. As with the proposed project, each of the cumulative projects would be required to comply with the Construction General Permit. The SWRCB has determined that the Construction General Permit protects water quality, is consistent with the CWA, and addresses the cumulative impacts of numerous construction activities throughout the state. This determination in conjunction with the implementation of mitigation would ensure short-term water quality impacts are not cumulatively considerable.

The project is not expected to result in long-term operations-related impacts related to water quality. The project would mitigate potential water quality impacts by implementing site design, source control, and treatment control BMPs. Some cumulative projects would require compliance with the SWRCB's NPDES general permit for industrial activities, as well as rules found in the CWA, Section 402(p)(1) and 40 CFR 122.26, and implemented Order No. 90-42 of the RWQCB. With implementation of SWRCB, Colorado River RWQCB, and County policies, plans, and ordinances governing land use activities that may degrade or contribute to the violation of water quality standards, cumulatively considerable impacts on water quality would be minimized to a less than significant level.

Based on a review of the FEMA Flood Insurance Rate Map FIRM, the proposed solar energy facility, gen-tie line, and access roads located on the western portion of the project site are located in Zone X (unshaded). The FEMA Zone X (unshaded) designation is an area determined to be outside the 0.2 percent annual chance floodplain. As such, the project would not result in a significant cumulatively considerable impact on floodplains by constructing new facilities within an identified flood hazard zone.

Based on these considerations, the project would not contribute to or result in a significant cumulatively considerable impact to hydrology or water quality, and cumulative impacts would be less than significant.

5.3.8 Land Use Planning

The geographic scope for the analysis of cumulative land use and planning impacts is typically defined by government jurisdiction. The geographic scope for considering potential inconsistencies with the General Plan's policies from a cumulative perspective includes all lands within the County's jurisdiction and governed by its currently adopted General Plan. In contrast, the geographic scope for considering potential land use impacts or incompatibilities include the project site plus a one-mile buffer to ensure a consideration for reasonably anticipated potential direct and indirect effects.

As provided in Section 3.9, Land Use/Planning, the project would not involve any facilities that could otherwise divide an established community. Based on this circumstance, no cumulatively considerable

impacts would occur. As discussed in Section 3.9, Land Use/Planning, the project would not conflict with the goals and objectives of the County of Imperial General Plan if all entitlements (General Plan amendment, Conditional Use Permit, and Variance) are approved by the County Board of Supervisors. In addition, a majority of the cumulative projects identified in Table 5-1 would not result in a conflict with applicable land use plans, policies, or regulations. In the event that incompatibilities or land use conflicts are identified for other projects listed in Table 5-1, similar to the projects, the County would require mitigation to avoid or minimize potential land use impacts. Where General Plan Amendments and/or Zone Changes are required to extend the RE Overlay Zone, that project would also be required to demonstrate consistency with the overall goals and policies of the General Plan, and would be required to demonstrate meeting the criteria for extending the RE Overlay onto the project site. Based on these circumstances, no significant cumulatively considerable impact would occur, and cumulative impacts would be less than significant.

5.3.9 Transportation/Traffic

During the construction phase of the project, the maximum number of trips generated on a daily basis would be approximately 80 trips. This trip count is so low that it does not require a formal traffic analysis as it does not have the potential to impact LOS of roadway segments and intersections. A majority of the projects listed in Table 5-1 are already constructed. As shown on Table 5-1, there are cumulative projects that are approved, but not yet built (Chocolate Mountain Solar, Midway Solar Farm IV, Calipatria Solar Farm I [Lindsey Solar], and Calipatria Solar Farm [Wilkinson Solar] or pending entitlement (Nider Solar Project). The construction phasing of these projects is not anticipated to overlap with the proposed project. Furthermore, with exception of SR-111, the cumulative projects are not anticipated to use the same construction haul route as the proposed project. Future operations and maintenance would be conducted remotely, with minimal trips to the project site for panel washing and other solar maintenance. Based on these findings, the project would not result in cumulatively considerable roadway or intersection impacts, and this impact would be less than significant.

5.3.10 Utilities/Service Systems

Future development in Imperial County would increase the demand for utility service in the region. In terms of cumulative impacts, the appropriate service providers are responsible for ensuring adequate provision of public utilities within their jurisdictional boundaries. The proposed project would not require or result in the relocation or construction of new or expanded wastewater facilities, storm water facilities, or water facilities. Additionally, the project would be comprised of mostly recyclable materials and would not generate significant volumes of solid waste that could otherwise contribute to significant decreases in landfill capacity. Based on these considerations, the project would result in less than significant impacts on existing utility providers and, therefore, would not result in cumulatively considerable impacts.

6 Effects Found Not Significant

In accordance with Section 15128 of the CEQA Guidelines, an EIR must contain a statement briefly indicating the reasons that various potential significant effects of a project were determined not to be significant. Based on the Initial Study and Notice of Preparation prepared for the proposed project (Appendix A of this EIR), Imperial County has determined that the proposed project would not have the potential to cause significant adverse effects associated with the topics identified below. Therefore, these topics are not addressed in this EIR; however, the rationale for eliminating these topics is briefly discussed below.

6.1 Agriculture and Forestry Resources

6.1.1 Agriculture Resources

According to the farmland maps prepared by the California Department of Conservation (2017), the project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (California Department of Conservation 2017). The proposed project would not convert Important Farmland to non-agricultural uses.

The project site is currently designated by the General Plan as "Recreation" and is zoned "Open Space/Preservation" with a Geothermal Overlay (S-2-G). According to the 2016/2017 Imperial County Williamson Act Map produced by the California Department of Conservation's Division of Land Resource Protection, the project site is not located within Williamson Act contracted land (California Department of Conservation 2016). The proposed project has no potential to conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, implementation of the proposed project would not impact agriculture resources.

6.1.2 Forestry Resources

No portion of the project site or the immediate vicinity is zoned or designated as forest lands, timberlands, or timberland production. As such, the proposed project would not result in a conflict with existing zoning or cause the need for a zone change. Therefore, implementation of the proposed project would not impact forestry resources.

6.2 Energy

The use of energy associated with the project includes both construction and operational activities. Construction activities consume energy through the use of heavy construction equipment and truck and worker traffic. The proposed project will use energy-conserving construction equipment, including standard mitigation measures for construction combustion equipment recommended in the ICAPCD CEQA Air Quality Handbook (ICAPCD 2017). The use of better engine technology, in conjunction with the ICAPCD's standard mitigation measures will reduce the amount of energy used for the project.

Implementation and operation of the proposed project would promote the use of renewable energy and contribute incrementally to the reduction in demand for fossil fuel use for electricity-generating purposes. The project would generate renewable energy resources and is considered a beneficial effect. Based on these considerations, the proposed project would not result in significant

environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

The project will help California meet its Renewable Portfolio Standard of 50 percent of retail electricity sales from renewable sources by the end of 2030. The electricity generation process associated with the project would utilize solar technology to convert sunlight directly into electricity. Solar PV technology is consistent with the definition of an "eligible renewable energy resource" in Section 399.12 of the California Public Utilities Code and the definition of "in-state renewable electricity generation facility" in Section 25741 of the California PRC. The proposed project would not conflict with or obstruct a state or local plan for renewable energy of energy efficiency. The proposed project would result in a less than significant impact related to energy.

6.3 Hazards and Hazardous Materials

Construction of the proposed project will involve the limited use of hazardous materials, such as fuels and greases to fuel and service construction equipment. No extremely hazardous substances are anticipated to be produced, used, stored, transported, or disposed of as a result of project construction. No operations and maintenance facilities, or habitable structures are proposed on-site. Operation of the project will be conducted remotely. Regular, routine maintenance of the project may result in the potential to handle hazardous materials. However, the hazardous materials handled on-site would be limited to small amounts of everyday use cleaners and common chemicals used for maintenance.

The applicant will be required to comply with State laws and County Ordinance restrictions, which regulate and control hazardous materials handled on-site. Such hazardous wastes would be transported off-site for disposal according to applicable State and County restrictions and laws governing the disposal of hazardous waste during construction and operation of the project. Based on these considerations, a less than significant impact would occur.

The project site is not located within 0.25 mile of an existing or proposed school. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No impact would occur.

Based on a review of the Cortese List conducted in November 2019, the project site is not listed as a hazardous materials site. Therefore, the proposed project would not create a significant hazard to the public or the environment and no impact would occur.

The project site is not located within two miles of a public airport or public use airport. Therefore, the proposed project would not result in airport hazards for people residing or working in the project area and no impact would occur.

The proposed project is not expected to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The project applicant will be required, through the conditions of approval, to prepare a street improvement plan for the project that will include emergency access points and safe vehicular travel. In addition, local building codes would be followed to minimize flood, seismic, and fire hazard. Therefore, the proposed project would result in a less than significant impact associated with the possible impediment to emergency plans.

6.4 Mineral Resources

The project site is not used for mineral resource production and the applicant is not proposing any form of mineral extraction. According to Figure 8: Imperial County Existing Mineral Resources of the Conservation and Open Space Element of the General Plan (County of Imperial 2016), no known mineral resources occur within the project site nor does the project site contain mapped mineral resources. Therefore, the proposed project would not result in the loss of availability of any known mineral resources that would be of value to the region and the residents of California nor would the proposed project result in the loss of availability of a locally important mineral resource.

Based on a review of the California Department Division of Oil, Gas, and Geothermal Resources Well Finder, there is one idle geothermal well (Well No. 02591491) located in the northwest quarter of the project parcel (California Department of Oil, Gas, and Geothermal Resources n.d.). This geothermal well would be avoided by the proposed project. Implementation of the proposed project would not impact geothermal wells.

6.5 Noise

The Imperial County Title 9 Land Use Ordinance, Division 7, Chapter 2, Section 90702.00 - Sound level limits, establishes one-hour average sound level limits for the County's land use zones. Industrial operations are required to comply with the noise levels prescribed under the general industrial zones. Therefore, the project is required to maintain noise levels below 75 decibels (dB) (averaged over one hour) during any time of day. The project would be expected to comply with the Noise Element of the General Plan which states that construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB, when averaged over an eight hour period, and measured at the nearest sensitive receptor. Construction equipment operation is also limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. on Saturdays. Compliance with Imperial County's standards for construction noise levels would result in less than significant noise impacts during project construction.

Groundborne vibration and groundborne noise could originate from earth movement during the construction phase of the proposed project Construction of the proposed project may require post driving and vibratory rollers and has the potential to result in temporary vibration impacts on structures and humans. However, the project site is in a generally rural area and surrounded by relatively undisturbed desert lands. Sensitive receptors located within one mile of the project site consist of a few scattered rural homes west of the site. There are no sensitive receptors within 1,500 feet of the project site boundary. The project would be expected to comply with all applicable requirements for long-term operation, as well as with measures to reduce excessive groundborne vibration and noise to ensure that the project would not expose persons or structures to excessive groundborne vibration. No further analysis is warranted.

The project site is not located within two miles of a public airport or private airstrip. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels and no impact would occur.

6.6 Population and Housing

Development of housing is not proposed as part of the project. No full-time employees are required to operate the project. The project facility will be monitored remotely. It is anticipated that maintenance of the facility will require minimal site presence to perform periodic visual inspections and minor

repairs. On intermittent occasions, the presence of additional workers may be required for repairs or replacement of equipment and panel cleaning; however, due to the nature of the facility, such actions will likely occur infrequently. Therefore, the proposed project would not result in a substantial growth in the area, as the number of employees required to operate and maintain the facility is minimal.

No housing exists within the project site and no people reside within the project site. Therefore, the proposed project would not displace substantial numbers of people or housing, necessitating the construction of replacement housing elsewhere. The proposed project would result in no impact to population and housing.

6.7 Public Services

Fire Protection. Fire protection and emergency medical services in the area are provided by the Imperial County Fire Department. The project site is located in the unincorporated area of Imperial County. According to the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the potential for a major fire in the unincorporated areas of the County is generally low. Both the access and service roads (along the perimeter of the project facility) would have turnaround areas to allow clearance for fire trucks per fire department standards (70 feet by 70 feet, and 20-foot-wide access road). While the proposed project may result in an increase in demand for fire protection service, the project would not result in an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered fire protection 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. Based on these considerations, the project would not result in a need for fire facility expansion and a less than significant impact would occur.

Police Protection. Police protection services in the project area is provided by the Imperial County Sheriff's Department. Although the potential is low, the proposed project may attract vandals or other security risks. The increase in construction related traffic could increase demand on law enforcement services. However, the project site would be fenced with 6-foot high chain link security fence topped with barbed wire and points of ingress/egress would be accessed via locked gates. In addition, periodic on-site personnel visitations for security would occur during operations and maintenance of the proposed project, thereby minimizing the need for police surveillance. While the proposed project may result in a temporary increase in demand for law enforcement service, the project would not result in a an increase in demand that would, in turn, result in a substantial adverse physical impact associated with the provision of new or physically altered sheriff 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. The sheriff's department has indicated that an all-terrain vehicle would be needed in order to patrol the project site; however, the fenced and secure project site does not result in an increase in demand on law enforcement that would require existing or new facilities to be upgraded in order to maintain service ratios. Further, as conditions of approval of the project, the project applicant will be required to participate in the Imperial County Public Benefit Program for the life of this CUP and shall at all times be a party to a public benefit agreement in a form acceptable to County Counsel in order to pay for all costs, benefits, and fees associated with the approved project, and the applicant will be required to reimburse the Sheriff's Department for any investigations regarding theft on the Project site and related law enforcement. Approval of this public benefit agreement will be by the Board of Supervisors prior to the issuance of the first building permit. These potential impacts are less than significant. ~~This is considered a less than significant impact.~~

Schools. The proposed project does not include the development of residential land uses that would result in an increase in population or student generation. Construction of the proposed project would not result in an increase in student population within the Imperial County's School District since it is anticipated that construction workers would commute in during construction operations. The proposed project would have no impact on Imperial County schools.

Parks and Other Public Facilities. No full-time employees are required to operate the project. The project facility will be monitored remotely. It is anticipated that maintenance of the facility will require minimal site presence to perform periodic visual inspections and minor repairs. Therefore, substantial permanent increases in population that would adversely affect local parks, libraries, and other public facilities are not expected. The project is not expected to have an impact on parks, libraries, and other public facilities.

6.8 Recreation

The project site is not used for formal recreational purposes. Also, the proposed project would not generate new employment on a long-term basis. As such, the project would not significantly increase the use or accelerate the deterioration of regional parks or other recreational facilities. The temporary increase of population during construction that might be caused by an influx of workers would be minimal and not cause a detectable increase in the use of parks. Additionally, the project does not include or require the expansion of recreational facilities. Therefore, no impact is identified for recreation.

6.9 Utilities and Service Systems

Wastewater Facilities. The project would generate a minimal volume of wastewater during construction. During construction activities, wastewater would be contained within portable toilet facilities and disposed of at an approved site. No habitable structures are proposed on the project site, such as O&M buildings; therefore, there would be no wastewater generation from the proposed project. The proposed project would not require or result in the relocation or construction of new or expanded wastewater facilities.

Storm Water Facilities. The proposed project will involve the construction of drainage control facilities within the project site as shown on Figure 2-4 Preliminary Site Plan, ~~which are identified in the project site plan~~, and included in the project impact footprint, of which environmental impacts have been evaluated. Otherwise, the project does not require expanded or new storm drainage facilities off-site (i.e., outside of the project footprint) because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events, and therefore, would not require the construction of off-site storm water management facilities. Water from solar panel washing would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious. The proposed project would not require or result in the relocation or construction of new or expanded storm water facilities beyond those proposed as part of the project and evaluated in the EIR.

Water Facilities. The proposed project is not anticipated to result in a significant increase in water demand/use during operation; however, water will be needed for solar panel washing and dust suppression. During operation, water would be trucked to the project site from a local water source. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded water facilities.

Power, Natural Gas, and Telecommunication Facilities. The proposed project would involve construction of power facilities and would include a fiber optic connection. However, these are components of the project as evaluated in the EIR. The proposed project would not otherwise generate the demand for or require or result in the relocation or construction of new or expanded electric power, natural gas, or telecommunications facilities that would in turn, result in a significant impact to the environment.

Solid Waste Facilities. Solid waste generation would be minor for the construction and operation of the project. Solid waste would be disposed of using a locally-licensed waste hauling service, most likely Allied Waste. Trash would likely be hauled to the Niland Solid Waste Site (13-AA-0009) located in Niland. The Niland Solid Waste Site has approximately 318,669 cubic yards of remaining capacity and is estimated to remain in operation through 2056 (CalRecycle n.d.). Therefore, there is ample landfill capacity in the County to receive the minor amount of solid waste generated by construction and operation of the project.

Additionally, because the proposed project would generate solid waste during construction and operation, the project would be required to comply with state and local requirements for waste reduction and recycling; including the 1989 California Integrated Waste Management Act and the 1991 California Solid Waste Reuse and Recycling Access Act of 1991. Also, conditions of the CUP would contain provisions for recycling and diversion of Imperial County construction waste policies.

Further, when the proposed project reaches the end of its operational life, the components would be decommissioned and deconstructed. When the project concludes operations, much of the wire, steel, and modules of which the system is comprised would be recycled to the extent feasible. The project components would be deconstructed and recycled or disposed of safely, and the site could be converted to other uses in accordance with applicable land use regulations in effect at the time of closure. Commercially reasonable efforts would be used to recycle or reuse materials from the decommissioning. All other materials would be disposed of at a licensed facility. A less than significant impact is identified for this issue.

6.10 Wildfire

According to the Draft Fire Hazard Severity Zone Map for Imperial County prepared by the California Department of Forestry and Fire Protection, the project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). Therefore, no impact is identified for wildfire.

7 Alternatives

7.1 Introduction

The identification and analysis of alternatives is a fundamental concept under CEQA. This is evident in that the role of alternatives in an EIR is set forth clearly and forthrightly within the CEQA statutes. Specifically, CEQA §21002.1(a) states:

> *"The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided."*

The CEQA Guidelines require an EIR to "describe a range of reasonable alternatives to the project, or to the location of 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" (CEQA Guidelines §15126.6(a)). The CEQA Guidelines direct that selection of alternatives focus on those alternatives capable of eliminating any significant environmental effects of the project or of reducing them to a less-than significant level, even if these alternatives would impede to some degree the attainment of project objectives, or would be more costly. In cases where a project is not expected to result in significant impacts after implementation of recommended mitigation, review of project alternatives is still appropriate.

The range of alternatives required within an EIR is governed by the "rule of reason" which requires an EIR to include only those alternatives necessary to permit a reasoned choice. The discussion of alternatives need not be exhaustive. Furthermore, an EIR need not consider an alternative whose implementation is remote and speculative or whose effects cannot be reasonably ascertained.

Alternatives that were considered but were rejected as infeasible during the scoping process should be identified along with a reasonably detailed discussion of the reasons and facts supporting the conclusion that such alternatives were infeasible.

Based on the alternatives analysis, an environmentally superior alternative is designated among the alternatives. If the environmentally superior alternative is the No Project Alternative, then the EIR shall identify an environmentally superior alternative among the other alternatives (CEQA Guidelines §15126.6(e)(2)).

7.2 Criteria for Alternatives Analysis

As stated above, pursuant to CEQA, one of the criteria for defining project alternatives is the potential to attain the project objectives. Established objectives of the project applicant for the proposed project include:

- Construct, operate and maintain an efficient, economic, reliable, safe and environmentally sound solar-powered electricity generating facility.
- Help meet California's Renewable Portfolio Standard (RPS) requirements, which require that by 2030, California's electric utilities are to obtain 50 percent of the electricity they supply from renewable sources.

- Generate renewable solar-generated electricity from proven technology, at a competitive cost, with low environmental impact, and deliver it to the local markets as soon as possible.
- Develop, construct, own and operate the Wister Solar Energy Facility, and ultimately sell its electricity and all renewable and environmental attributes to an electric utility purchaser under a long-term contract to meet California's RPS goals.
- Utilize a location that is in close proximity to an existing switching station and powerlines.
- Minimize and mitigate any potential impact to sensitive environmental resources within the project area.

7.3 Alternatives Considered but Rejected

7.3.1 Alternative Site

Section 15126.6(f)(2) of the CEQA Guidelines addresses alternative locations for a project. The key question and first step in the analysis is whether any of the significant effects of the proposed project would be avoided or substantially lessened by constructing the proposed project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR. Further, CEQA Guidelines Section 15126.6(f)(1) states that among the factors that may be taken into account when addressing the feasibility of alternative locations are whether the project proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent).

With respect to the proposed project, no significant, unmitigable impacts have been identified. With implementation of proposed mitigation, all potentially significant environmental impacts will be mitigated to a level less than significant.

The Applicant investigated the opportunity to develop the project site in the general project area and determined that the currently proposed project site is the most suitable for development of the solar facility. An alternative site was considered and is depicted on Figure 7-1. As shown, this site is located southeast of the project site on privately-owned agricultural lands. The site, located on APN 025-600-027, comprises approximately 126 acres of land.

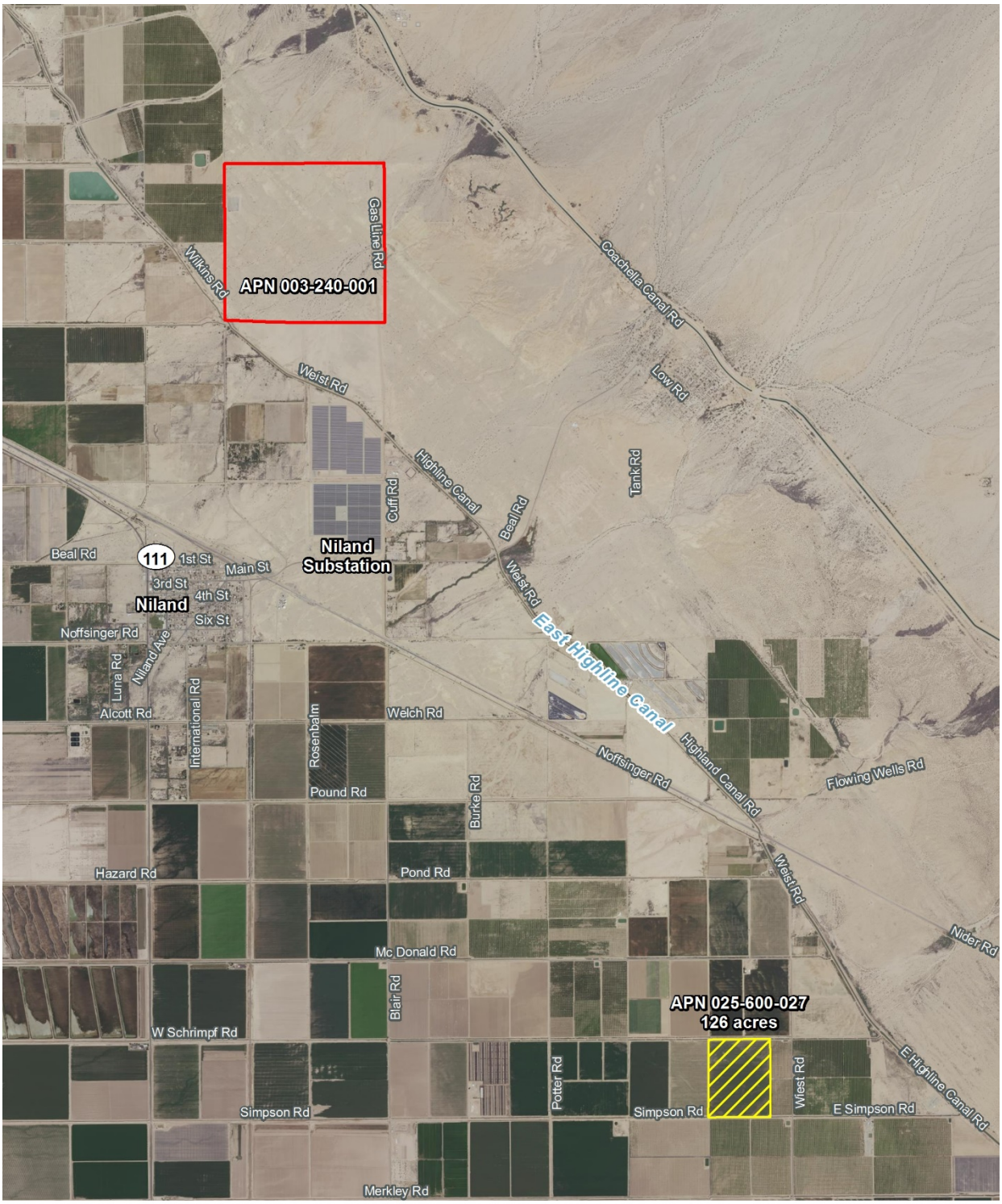
However, this site was rejected from detailed analysis for the following reasons:

- The alternative location site, as compared to the proposed project site, is located on agricultural land. According to the farmland maps prepared by the California Department of Conservation (2017), the alternative site is designated as Prime Farmland and Farmland of Statewide Importance. Therefore, compared to the proposed project, the alternative site would result in potentially significant impacts associated with conversion of Important Farmland to non-agricultural uses.
- Burrowing owls were not present on the project site during the biological surveys. As the proposed project is not within the IID Service District, no IID canals or drains (which are very attractive to burrowing owls) are present within the project site. Compared to the proposed project site, the alternative site is located entirely on agricultural fields and surrounded on all sides by agricultural fields. Agricultural fields provide habitat for burrowing owl. Irrigation canals and drains are commonly used as burrowing nesting sites in the Imperial Valley. It is anticipated that the potential for burrowing owl to occur on the alternative site during construction and operations is greater compared to the proposed project site.

- No significant, unmitigated impacts have been identified for the proposed project. Construction and operation of the proposed project at this alternative location would likely result in similar impacts associated with the proposed project, or additional impacts (conversion of Important Farmland to non-agricultural uses) that are currently not identified for the project at the currently proposed location.

As such, the County considers this alternative location infeasible and rejects further analysis of this alternative because of the factors listed above.

Figure 7-1. Alternative Site



7.3.2 Original Site Plan Submittal

The project applicant originally proposed to construct and operate a 40 MW solar energy facility on approximately 300 acres within the western portion of the larger 640-acre project site parcel. The originally-proposed project was contemplated to be constructed in two phases (Figure 7-2). Each phase would have produced 20 MW of energy and cover approximately 146 acres. A Power Purchase Agreement (PPA) for 20 MW to San Diego Gas & Electric (SDG&E) was secured by the project applicant for the first phase of the project. The second 20 MW phase would not be constructed until the time that an additional PPA is secured. The remaining portion of the property would remain undeveloped in order to protect sensitive environmental resources. (Note: The project was subsequently modified to a 20 MW solar energy facility on an approximately 100-acre site as described in Section 2 Project Description).

Although this alternative would result in an increased power production capacity and greater GHG emission offset compared to the proposed project, the County rejects the Original Site Plan Submittal from further analysis due to increased biological resources impacts, increased jurisdictional waters impacts, and potential disturbance to known and unknown cultural resources.

As shown on Figure 3.4-1 (Section 3.4, Biological Resources), arrow weed thicketoccur in the southwest portion of the project site (Phase I development area as shown on Figure 7-2). As shown on Figure 3.4-2 (Section 3.4, Biological Resources), the Phase I development area contains numerous braided ephemeral drainage channels, which could be considered federally and state jurisdictional. Based on this context, the Original Site Plan Submittal has the potential to impact a sensitive vegetation community and increased impacts on potentially jurisdictional waters compared to the proposed project. Further this alternative has the potential to disturb portions of a known cultural resource site.

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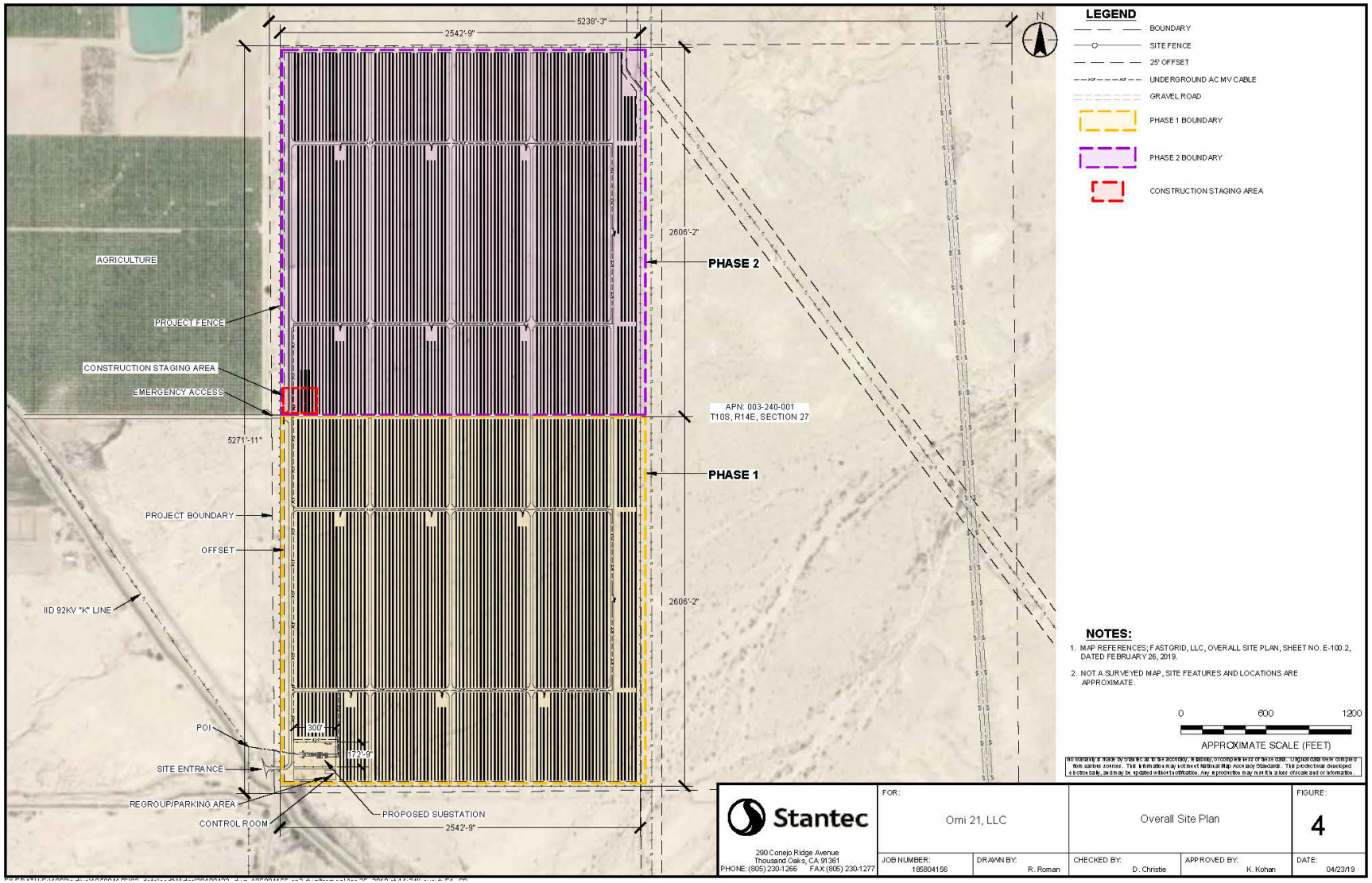
Figure 7-2. Original Site Plan



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7.4 Alternative 1: No Project/No Development Alternative

The CEQA Guidelines require analysis of the No Project Alternative (PRC Section 15126). According to Section 15126.6(e)(1), "the specific alternative of 'no project' shall also be evaluated along with its impact." Also, pursuant to Section 15126.6(e)(2); "The 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, … at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."

The No Project/No Development Alternative assumes that the project, as proposed, would not be implemented and the project site would not be further developed with a solar energy project. The No Project/No Development Alternative would not meet a majority of the project objectives.

7.4.1 Environmental Impact of Alternative 1: No Project/No Development Alternative

Aesthetics and Visual Resources

Under the No Project/No Development Alternative, the project site would not be developed and would continue to be undeveloped, partially disturbed land. The No Project/No Development Alternative would not modify the existing project site or add construction to the project site' therefore, there would be no change to the existing condition of the site. Under this alternative, there would be no potential to create a new source of light or glare associated with the PV arrays. As discussed in greater detail in Section 3.2, Aesthetics and Visual Resources, the proposed project would result in a less than significant impact associated with introduction of new sources of light and glare. Under the No Project Alternative, no new sources of light, glare, or other aesthetic impacts would occur. Under this alternative, light, glare, and aesthetic impacts would be less compared to the project as the existing visual conditions would not change.

Air Quality

Under the No Project/No Development Alternative, there would be no air emissions associated with project construction or operation, and no project- or cumulative-level air quality impact would occur. Therefore, no significant impacts to air quality or violation of air quality standards would occur under this alternative. Moreover, this alternative would be consistent with existing air quality attainment plans and would not result in the creation of objectionable odors.

As discussed in Section 3.3, Air Quality, the proposed project would not exceed the ICAPCD's significance thresholds for emissions of ROG, CO, NOx, and PM_{10} during both the construction and operational phases of the project. Although no significant air quality impacts would occur, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust.

This alternative would result in less air quality emissions compared to the proposed project, the majority of which would occur during construction.

Biological Resources

Under the No Project/No Development Alternative, existing biological resource conditions within the project site would largely remain unchanged and no impact would be identified. Unlike the proposed project which requires mitigation for biological resources including burrowing owl, other migratory birds, and potential jurisdictional waters, this alternative would not result in construction of a solar facility that could otherwise result in significant impacts to these biological resources. Compared to the proposed project, this alternative would avoid impacts to biological resources.

Cultural Resources

The proposed project would involve ground-disturbing activities that have the potential to disturb previously undocumented cultural resources that could qualify as historical resources or unique archaeological resources pursuant to CEQA. Under the No Project/No Development Alternative, the project site would not be developed and no construction-related ground disturbance would occur. Therefore, compared to the proposed project, this alternative would avoid impacts to cultural resources.

As discussed in Section 3.5, Cultural Resources, no tribes have responded that indicate the potential for traditional cultural properties or sacred sites on the project site. Therefore, the project is not anticipated to cause a substantial adverse change in the significance of a tribal cultural resource. Impacts to tribal cultural resources under the No Project/No Development Alternative are similar to the proposed project.

Geology and Soils

Because there would be no development at the project site under the No Project/No Development Alternative, no grading or construction of new facilities would occur. Therefore, there would be no impact to project-related facilities as a result of local seismic hazards (strong ground shaking), soil erosion, and paleontological resources. In contrast, the proposed project would require the incorporation of mitigation measures related to strong ground shaking, soil erosion, and paleontological resources to minimize impacts to a less than significant level. Compared to the proposed project, this alternative would avoid significant impacts related to local geology and soil conditions and paleontological resources.

Greenhouse Gas Emissions

Under the No Project/No Development Alternative, there would be no GHG emissions resulting from project construction or operation or corresponding impact to global climate change. The No Project/No Development Alternative would not help California meet its statutory and regulatory goal of increasing renewable power generation, including GHG reduction goals of AB 32 (California Global Warming Solutions Act of 2006). While this alternative would not further implement policies (e.g., SB X1-2) for GHG reductions, this alternative would also not directly conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. This alternative would not create any new GHG emissions during construction but would not lead to a long-term beneficial impact to global climate change by providing renewable clean energy. For the proposed project, a less than significant impact was identified for construction-related GHG emissions, and in the long-term, the project would result in an overall beneficial impact to global climate change as the result of creation of clean renewable energy, that does not generated GHG emissions. Compared to the proposed project, while the No Project/No Development Alternative would not result in new GHG emissions during

construction, it would be less beneficial to global climate change as compared to the proposed project. Further, the construction emissions (amortized over 20 years) associated with the project would be off-set by the beneficial renewable energy provided by the project, negating any potential that the No Project/No Development alternative would reduce construction-related GHG emissions.

Hydrology/Water Quality

The No Project/No Development Alternative would not result in modifications to the existing drainage patterns or volume of storm water runoff as attributable to the proposed project, as the existing site conditions and on-site pervious surfaces would remain unchanged. In addition, no changes with regard to water quality would occur under this alternative. Compared to the proposed project, from a drainage perspective, this alternative would avoid changes to existing hydrology. Compared to the proposed project, this alternative would not result in the placement of structures within a 100-year flood zone. Under this alternative, there would be no water demand and no groundwater well would be constructed. This alternative would have less of an impact associated with hydrology/water quality as compared to the proposed project.

Land Use Planning

As discussed in Section 3.9, Land Use Planning, the proposed project would not physically divide an established community or conflict with applicable plans, policies, or regulations.

Under the No Project/No Development Alternative, the project site would not be developed and continue to be undeveloped, partially disturbed land. Current land uses would remain the same. No General Plan Amendment, Zone Change, CUP, or Variance would be required under this alternative. No existing community would be divided, and no inconsistencies with planning policies would occur. Because no significant Land Use and Planning impact has been identified associated with the proposed project, this alternative would not avoid or reduce a significant impact related to this issue and therefore, it is considered similar to the proposed project.

Transportation/Traffic

There would be no new development under the No Project/No Development Alternative. Therefore, this alternative would not generate vehicular trips during construction or operation. For these reasons, no impact would occur and this alternative would not impact any applicable plan, ordinance, or policy addressing the performance of the circulation system, conflict with an applicable congestion management program, substantially increase hazards because of a design feature, result in inadequate emergency access, or conflict with public transit, bicycle, or pedestrian facilities. Although the proposed project would result in less than significant transportation/traffic impacts, this alternative would avoid an increase in vehicle trips on local roadways, and any safety related hazards that could occur in conjunction with the increase vehicle trips and truck traffic, primarily associated with the construction phase of the project.

Utilities and Service Systems

The No Project/No Development Alternative would not require the expansion or extension of existing utilities, since there would be no new project facilities that would require utility service. No solid waste would be generated under this alternative. The proposed project would not result in any significant impacts to existing utilities or solid waste facilities. Compared to the proposed project, this alternative would have less of an impact related to utilities and solid waste facilities.

Conclusion

Implementation of the No Project/No Development Alternative would generally result in reduced impacts for a majority of the environmental issues areas considered in Chapter 3, Environmental Analysis when compared to the proposed project. A majority of these reductions are realized in terms of significant impacts that are identified as a result of project construction. However, this alternative would not realize the benefits of reduced GHG emissions associated with energy use, which are desirable benefits that are directly attributable to the proposed project.

Comparison of the No Project/No Development Alternative to Project Objectives

The No Project/No Development Alternative would not meet a majority of the objectives of the project. Additionally, the No Project/No Development Alternative would not help California meet its statutory and regulatory goal of increasing renewable power generation, including GHG reduction goals of AB 32 (California Global Warming Solutions Act of 2006).

7.5 Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands

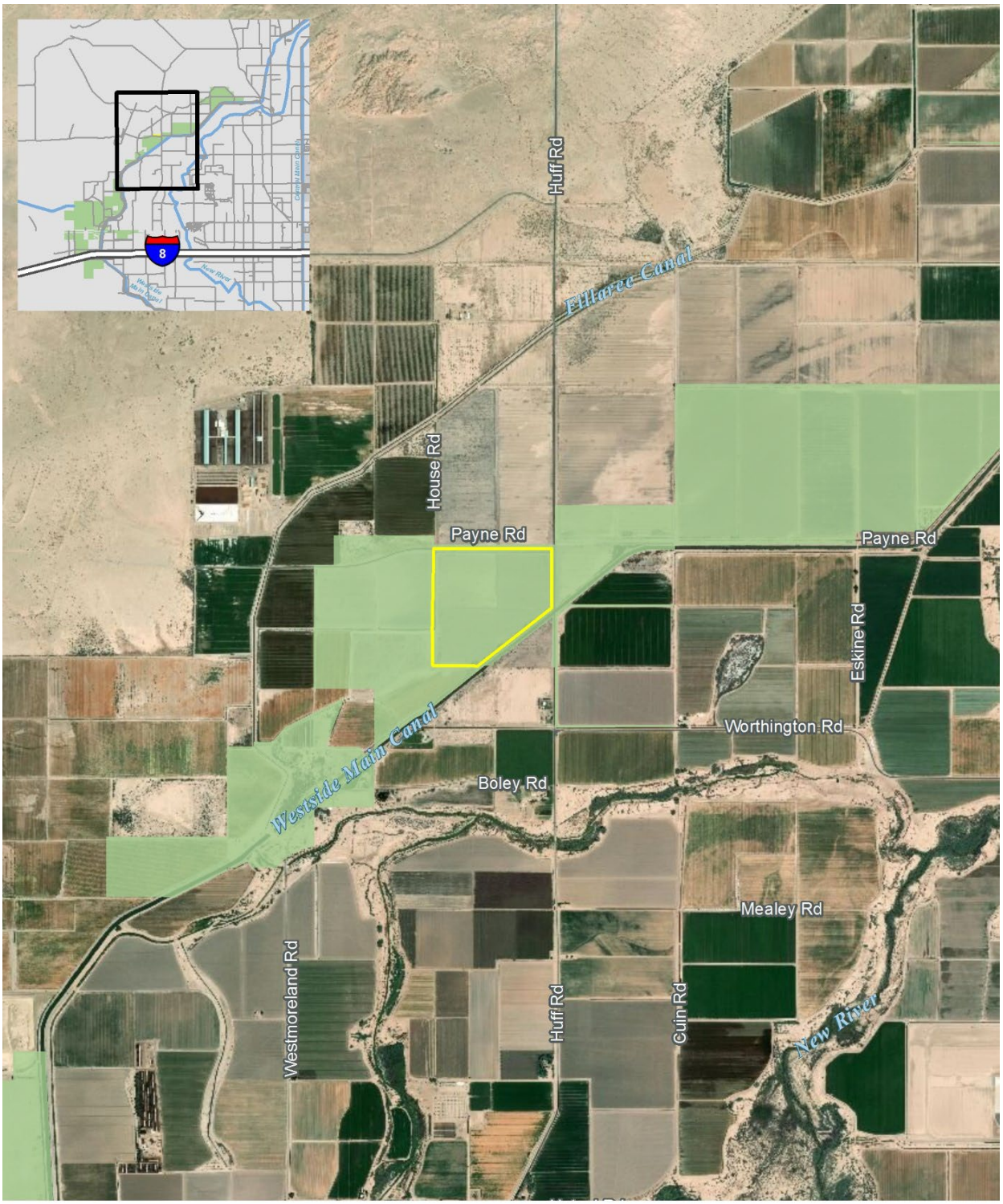
In certain cases, an evaluation of an alternative location in an EIR is necessary. Section 15126.6(f)(2)(A) of the CEQA Guidelines states, "Key question. The key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR."

The purpose of this alternative is to develop the proposed project within the existing boundary of County's RE Overlay Zone. The RE Overlay Zone is concentrated in areas determined to be the most suitable for the development of renewable energy facilities while minimizing the impact on other established areas.

As shown on Figure 7-3, the Alternative 2 project site is located entirely within the RE Overlay Zone. Alternative 2 would involve the construction and operation of a 20 MW solar energy facility and associated infrastructure on approximately 100 acres within a 130-acre parcel (APN 034-260-036) located approximately 4 miles northeast of the Dixieland area in unincorporated Imperial County. The Alternative 2 project site is designated as Agriculture under the County's General Plan and zoned A-3 (Heavy Agriculture).

Similar to the proposed project, Alternative 2 would require approval of a CUP to allow for the construction and operation of a solar project. Compared to the proposed project, the Alternative 2 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. The A-3 zone allows a maximum height limit of 120 feet for non-residential structures. No Variance would be required under this alternative because the proposed height of the transmission towers (70 feet) would not exceed 120 feet.

Figure 7-3. Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands



7.5.1 Environmental Impact of Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands

Aesthetics and Visual Resources

Compared to the proposed project site, the Alternative 2 project site is surrounded by agricultural lands. Similar to the proposed project, this would alter the existing visual character of the project site by changing the existing land use at the project site from undeveloped to a solar facility. The Alternative 2 project site is located approximately 3.5 miles northwest of the Naval Air Facility El Centro. Because of the proximity of the Naval Air Facility El Centro, there is a potential that this alternative could reflect significant levels of glare or glint upwards in a manner that could affect flight operations. Compared to the proposed project, this alternative could result in greater glare or glint impacts.

Air Quality

Similar to the proposed project, a 20 MW solar energy facility would be constructed on approximately 100 acres of land. Based on this consideration, this alternative would generate air emissions similar to the proposed project. As discussed in Section 3.3, Air Quality, the proposed project would not exceed the ICAPCD's significance thresholds for ROG, CO, NOx, and PM_{10} during construction and operation. Although no significant air quality impacts would occur, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. This alternative would result in similar air quality emissions as the proposed project. Similar to the proposed project, this alternative would result in temporary odor emissions from construction equipment.

Biological Resources

As discussed in Section 3.4, Biological Resources, burrowing owls were not present on the project site during the biological surveys. As the proposed project site is not within the IID Service District, no IID canals or drains (which are very attractive to burrowing owls) were present on site. Compared to the proposed project, the Alternative 2 site is located entirely on agricultural fields and surrounded on all sides by agricultural fields. Agricultural fields provide habitat for burrowing owl. Irrigation canals and drains are commonly used as burrowing nesting sites in the Imperial Valley. Mitigation would still be required for impacts to burrowing owl; however, the overall number of burrowing owl locations potentially impacted would be greater because their potential to occur on the Alternative 2 site is significantly higher than the proposed project site. Compared to the proposed project, development of this site would have greater impacts on burrowing owl.

Cultural Resources

This alternative would require the construction of supporting infrastructure (i.e., transmission towers, substation) that would require ground disturbance and therefore, has the potential to result in cultural and tribal cultural resources impacts. Compared to the proposed project, although this alternative would attempt to avoid cultural resources to the extent feasible, depending on the route of the proposed gen-tie line, this alternative could result in greater impacts on cultural and tribal cultural resources.

Geology and Soils

Grading and construction of new facilities, such as the solar facility and gen-tie line, would still occur under this alternative. Similar to the proposed project, this alternative would result in potentially significant impacts related to strong ground shaking, soil erosion, and paleontological resources and would require the incorporation of mitigation measures to minimize these impacts to a less than significant level. This alternative would result in similar geology and soil and paleontological resources impacts as the proposed project.

Greenhouse Gas Emissions

This alternative would result in the same power production capacity as the proposed project; hence, the overall benefits of the project to global climate change through the creation of renewable energy would be the same. This alternative would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This alternative would contribute similar and desirable benefits to reductions in global climate change through the production of renewable energy.

Hydrology/Water Quality

With implementation of the proposed mitigation measures, potential hydrology/water quality impacts under this alternative would be similar to those associated with the proposed project. Similar to the proposed project, no impacts would result from flooding and facilities will not be placed within floodplains.

Land Use Planning

Similar to the proposed project, Alternative 2 will require approval of a CUP to allow for the construction and operation of a solar project. However, the Alternative 2 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. No Variance would be required under this alternative because the proposed height of the transmission towers (70 feet) would not exceed the 120 feet height limit of non-residential structures in the A-3 Zone. Because this alternative would not require a General Plan Amendment, Zone Change, or Variance, Land Use Planning impacts are anticipated to be less than the proposed project.

Transportation/Traffic

This alternative would result in a similar level of construction and operation-related vehicle and truck trips as compared to the proposed project. However, the increase in vehicular traffic was identified as a less than significant impact for the proposed project. In this context, Alternative 2 would not reduce or avoid an impact related to transportation/traffic, and would result in less than significant impacts similar to the proposed project. As with the proposed project, this alternative would not impact any applicable plan, ordinance, or policy addressing the performance of the circulation system, conflict with an applicable congestion management program, substantially increase hazards because of a design feature, result in inadequate emergency access, or conflict with public transit, bicycle, or pedestrian facilities. This alternative would result in a similar impact related to transportation/traffic as the proposed project.

Utilities and Service Systems

During construction of this alternative, impacts would be similar to the proposed project in terms of water demand (for dust control) and solid waste generation. Similar to the proposed project, Alternative 2 would require similar levels of water demand and energy for the operation of the solar facility. As with the proposed project, panel washing and other maintenance would be required. This alternative would have similar water demands and associated impacts related to utilities and service systems.

Conclusion

As shown on Table 7-1, this alternative would result in reduced land use impacts compared to the proposed project. This alternative would result in greater impacts for the following environmental issue areas as compared to the proposed project: aesthetics and visual resources, biological resources, cultural resources, and tribal cultural resources.

Comparison of Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands to Project Objectives

Alternative 2 would meet most of the basic objectives of the proposed project and should remain under consideration. However, this alternative would result in greater impacts for the following environmental issue areas as compared to the proposed project: aesthetics and visual resources, biological resources, cultural resources and tribal cultural resources. Because the Alternative 2 site is located on agricultural lands, this alternative would result in the conversion of agricultural land to non-agricultural uses. Compared to the proposed project, this alternative would result in additional impacts (conversion of agricultural land to non-agricultural uses) that are currently not identified for the project at the currently proposed location. Further, the project applicant does not own, or otherwise control this property.

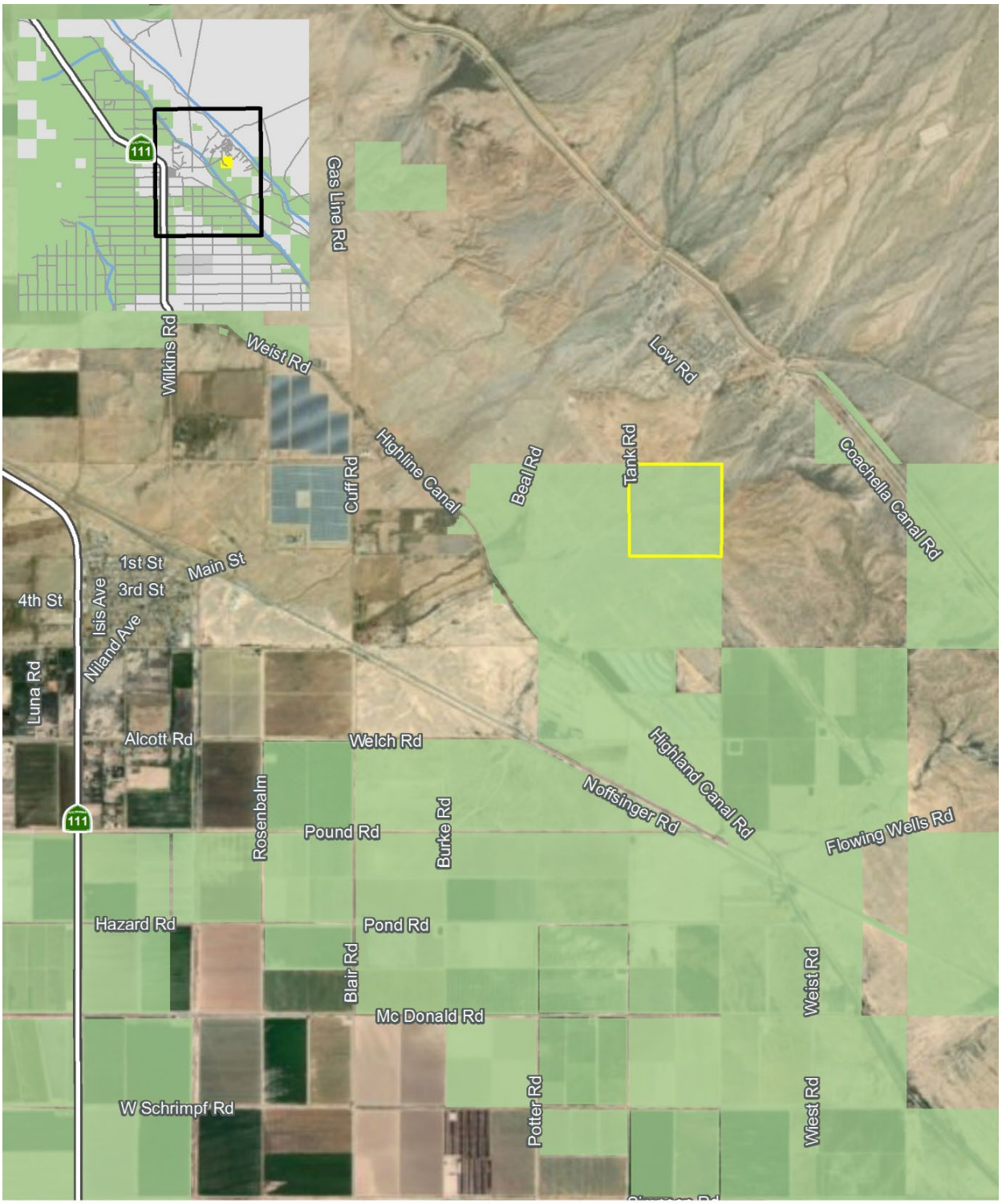
7.6 Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands

The purpose of this alternative is to develop the proposed project within the existing boundary of the County's RE Overlay Zone. As shown on Figure 7-4, the Alternative 3 project site is located entirely within the RE Overlay Zone. Alternative 3 would involve the construction and operation of a 20 MW solar energy facility and associated infrastructure on approximately 100 acres within a 161-acre parcel (APN 021-190-003) located approximately 0.5 mile south of Slab City. The Alternative 3 project site is located on undeveloped desert land. Existing transmission lines traverse the southwest corner of the project site.

The Alternative 3 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. The Alternative 3 project site is designated as Recreation under the County's General Plan and zoned General Agricultural with a renewable energy overlay (A-2-RE).

Similar to the proposed project, Alternative 3 will require approval of a CUP to allow for the construction and operation of a solar project. Compared to the proposed project, the Alternative 3 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. The A-2-RE zone allows a maximum height limit of 120 feet for non-residential structures. No Variance would be required under this alternative because the proposed height of the transmission towers (70 feet) would not exceed 120 feet.

Figure 7-4. Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands



7.6.1 Environmental Impact of Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands

Aesthetics and Visual Resources

Similar to the proposed project site, the Alternative 3 project site is located on undeveloped desert land. However, the Alternative 3 project site is located in closer proximity (approximately 0.5 mile) to Slab City and Salvation Mountain. Slab City is a former military facility that now serves as the site of an informal community for artists, travelers, and winter-time RV campers. Salvation Mountain is an outdoor art project at the western entrance to Slab City. Both attract tourists and sight-seers. Therefore, the project components would be more readily visible to more people compared to the proposed project. Compared to the proposed project, this alternative could result in greater aesthetics impacts.

Air Quality

Similar to the proposed project, a 20 MW solar energy facility would be constructed on approximately 100 acres of land. Based on this consideration, this alternative would generate air emissions similar to the proposed project. As discussed in Section 3.3, Air Quality, the proposed project would not exceed the ICAPCD's significance thresholds for ROG, CO, NOx, and PM_{10} during construction and operation. Although no significant air quality impacts would occur, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. This alternative would result in similar air quality emissions as the proposed project. Similar to the proposed project, this alternative would result in temporary odor emissions from construction equipment.

Biological Resources

As discussed in Section 3.4, Biological Resources, burrowing owls were not present on the project site during the biological surveys. As the proposed project site is not within the IID Service District, no IID canals or drains (which are very attractive to burrowing owls) were present on site. Compared to the proposed project site, the Alternative 3 site is located on the fringe of agricultural land. Agricultural fields provide habitat for burrowing owl. Irrigation canals and drains are commonly used as burrowing nesting sites in the Imperial Valley. Mitigation would still be required for impacts to burrowing owl; however, the overall number of burrowing owl locations potentially impacted would be greater because their potential to occur on the Alternative 3 site is higher than the proposed project site. Compared to the proposed project, development of this site would have greater impacts on burrowing owl. Further, this alternative has the potential to impact other sensitive plant and animals species associated with a relatively undisturbed desert setting.

The Alternative 3 site also contains desert washes and multiple braided channels. These features could be considered potentially jurisdictional waters. Similar to the proposed project, consultation would be required with USACE and CDFW to avoid or minimize impacts upon federally and state jurisdictional drainage features. This alternative would result in similar impacts related to potentially jurisdictional waters as the proposed project.

Cultural Resources

This alternative would require the construction of supporting infrastructure (i.e., transmission towers, substation) that would require ground disturbance and therefore, has the potential to result in cultural and tribal cultural resources impacts. While this alternative may avoid the specific impacts on the proposed project site, this alternative would also require the construction of supporting infrastructure that has the potential to result in cultural resources impacts. Compared to the proposed project, although this alternative would attempt to avoid cultural resources to the extent feasible, depending on the route of the proposed gen-tie line, this alternative could result in greater impacts on cultural and tribal cultural resources.

Geology and Soils

Grading and construction of new facilities, such as the solar facility and gen-tie line, would still occur under this alternative. Similar to the proposed project, this alternative would result in potentially significant impacts related to strong ground shaking, soil erosion, and paleontological resources and would require the incorporation of mitigation measures to minimize these impacts to a less than significant level. This alternative would result in similar geology and soil and paleontological resources impacts as the proposed project.

Greenhouse Gas Emissions

This alternative would result in the same power production capacity as the proposed project; hence, the overall benefits of the project to global climate change through the creation of renewable energy would be the same. This alternative would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This alternative would contribute similar and desirable benefits to reductions in global climate change through the production of renewable energy.

Hydrology/Water Quality

As discussed in Section 3.8, Hydrology/Water Quality, the proposed eastern access road that would connect to Gas Line Road is located in a 100-year flood zone (0.01 percent annual chance) (Zone A). The proposed eastern access road would not involve the addition of structures which could impede or redirect flood flows. In addition, the proposed access road would be constructed with an all-weather surface allowing runoff to continue to percolate into the ground. Therefore, the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows, and impacts would be less than significant.

According to the FEMA FIRM (06025C0450C), a portion of the Alternative 3 project site contains an area mapped as Zone A. Alternative 3 could place structures (i.e., PV arrays, substation, or transmission towers) within a 100-year flood zone and result in the redirection of flood flows on the project site. The Alternative 3 site also contains desert washes and multiple braided channels. Implementation of this alternative could potentially result in the modification of the existing drainage patterns and the volume of storm water runoff on the project site. Compared to the proposed project, this alternative would result in greater impacts related to hydrology/water quality.

Land Use Planning

Similar to the proposed project, Alternative 3 will require approval of a CUP to allow for the construction and operation of a solar project. Compared to the proposed project, the Alternative 3 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. No Variance would be required under this alternative because the proposed height of the transmission towers (70 feet) would not exceed the 120 feet height limit of non-residential structures in the A-2-RE Zone. Because this alternative would not require a General Plan Amendment, Zone Change, or Variance, Land Use Planning impacts are anticipated to be less than the proposed project.

Transportation/Traffic

This alternative would result in a similar level of construction and operation-related vehicle and truck trips as compared to the proposed project. However, the increase in vehicular traffic was identified as a less than significant impact for the proposed project. In this context, Alternative 3 would not reduce or avoid an impact related to transportation/traffic, and would result in less than significant impacts similar to the proposed project. As with the proposed project, this alternative would not impact any applicable plan, ordinance, or policy addressing the performance of the circulation system, conflict with an applicable congestion management program, substantially increase hazards because of a design feature, result in inadequate emergency access, or conflict with public transit, bicycle, or pedestrian facilities. This alternative would result in a similar impact related to transportation/traffic as the proposed project.

Utilities and Service Systems

During construction of this alternative, impacts would be similar to the proposed project in terms of water demand (for dust control) and solid waste generation. Similar to the proposed project, Alternative 3 would require similar levels of water service and energy for the operation of the solar facility. As with the proposed project, panel washing and other maintenance would be required. This alternative would have similar water demands and associated impacts related to utilities and service systems.

Conclusion

As shown on Table 7-1, this alternative would result in reduced land use impacts compared to the proposed project. This alternative would result in greater impacts for the following environmental issue areas as compared to the proposed project: aesthetics and visual resources, cultural resources, tribal cultural resources, and hydrology/water quality.

Comparison of Alternative 3: Development within Renewable Energy Overlay Zone – Desert Land to Project Objectives

Alternative 3 would meet most of the basic objectives of the proposed project and should remain under consideration. However, this alternative would result in greater impacts for the following environmental issue areas as compared to the proposed project: aesthetics and visual resources, cultural resources, tribal cultural resources, and hydrology/water quality. Further, the project applicant does not own, or otherwise control this property.

7.7 Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative

This alternative would involve the development of a number of geographically distributed small to medium solar PV systems (100 kilowatts to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities throughout Imperial County. Under this alternative, no new land would be developed or altered. Depending on the type of solar modules installed and the type of tracking equipment used, a similar or greater amount of acreage (i.e., greater than 100 acres of total rooftop area) may be required to attain the proposed project's capacity of 20 MW of solar PV generating capacity. This alternative would involve placement of PV structures, transmission lines, and development of additional supporting facilities, such as switching stations and substations at various locations throughout the County. This alternative assumes that rooftop development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations.

This alternative would require hundreds of installation locations across Imperial County, many of which would require approval of discretionary actions, such as design review, CUPs, or zone variances depending on local jurisdictional requirements. Similar to the proposed project, this alternative would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. This alternative would involve the construction of transmission lines and development of additional supporting facilities, such as switching stations and substations at various locations throughout the County to distribute the energy.

Rooftop PV systems exist in small areas throughout California. Larger distributed solar PV installations are becoming more common. An example of a distributed PV system is 1 MW of distributed solar energy installed by Southern California Edison on a 458,000 square-foot industrial building in Chino, California.[1]

Similar to utility-scale PV systems, the acreage of rooftops or other infrastructure required per MW of electricity produced is wide ranging, which is largely due to site-specific conditions (e.g., solar insolation levels, intervening landscape or topography, PV panel technology, etc.). Based on SCE's use of 458,000-square feet for 1 MW of energy, approximately 9,160,000 square feet (approximately 210 acres) would be required to produce 20 MW.

7.7.1 Environmental Impact of Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative

Aesthetics and Visual Resources

This alternative would reduce the overall size of the solar energy field located in one place. However, this alternative would involve placement of PV structures, transmission lines, and development of additional supporting facilities, such as switching stations and substations at various locations throughout the County. There could be significant aesthetic impacts in certain areas depending on the locations of these facilities. Transmission lines would need to be constructed to serve the PV generation sites, all of which would be placed in closer proximity to urban areas, and all of which would

[1] http://newsroom.edison.com/releases/california-regulators-approve-southern-california-edison-proposal-to-create-nations-largest-solar-panel-installation-program

be more readily visible to more people as compared to the proposed project. Compared to the proposed project, this alternative could result in greater aesthetics impacts.

Air Quality

Under this alternative, air emissions due to project construction could be less than the proposed project on a localized level; however, PV facilities and supporting infrastructure would still need to be constructed to support this alternative, which, like the proposed project, would involve short-term construction emissions. These emissions would likely be spread-out geographically throughout the basin, and would occur over a longer period of time, as this alternative would involve a longer overall timeframe for implementation. Furthermore, the construction efficiencies that can be obtained by mobilizing equipment and crews in one general location over a shorter timeframe would not be realized. By the nature of the alternative, in that solar panels would be constructed on habitable structures throughout the County, this alternative has the potential to expose more people to more localized construction-related emissions. Compared to the proposed project, this alternative would develop less renewable energy megawatt generation in the near-future, thereby reducing its ability to provide a long-term source of renewable energy and meeting renewable energy goals, and air quality impacts could be greater than those of the project under this alternative.

Biological Resources

Under this alternative, potential direct and indirect impacts to burrowing owl and jurisdictional waters would be avoided as compared to the proposed project. However, this alternative would also require the construction of supporting infrastructure that has the potential to result in biological impacts. While this alternative may avoid the specific impacts associated with the proposed project, it could also result in greater biological impacts in other areas of the County where supporting infrastructure is required to support Distributed Energy facilities.

Cultural Resources

This alternative would require the construction of infrastructure that has the potential to result in cultural and tribal cultural resources impacts If rooftop solar panels were proposed on historic buildings, this alternative could affect the historic character and integrity of the buildings. Implementation of this alternative would require historic surveys and investigations to evaluate the eligibility of potentially historic structures that are over 50 years old, and either avoidance of such buildings, or incorporation of design measures to minimize impacts on historic integrity of historically-significant structures. Compared to the proposed project, this alternative could result in greater impacts related to cultural and tribal cultural resources.

Geology and Soils

This alternative would involve placement of PV structures, transmission lines, and development of additional supporting facilities, such as switching stations and substations at various locations throughout the County. This alternative assumes that rooftop development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations. However, this alternative would still require grading and construction of new facilities such as transmission lines, PV structures, and supporting facilities (i.e., switching stations and substations) at various locations throughout the County. This alternative would likely result in similar impacts related to strong ground shaking, soil erosion, and paleontological resources as the proposed project. This alternative would also be subject to similar mitigation

measures as the proposed project to minimize impacts to a less than significant level. This alternative would result in similar geological and soil impacts.

Greenhouse Gas Emissions

Under this alternative, the project footprint would be reduced; however, in order to achieve the same megawatt capacity as the proposed project, this alternative would also involve a surface area similar in size to the project site. Therefore, while this alternative could reduce or eliminate GHG emissions during project construction at the project site, an equivalent level of GHG emissions is likely to occur, as a result of constructing solar panels and supporting infrastructure throughout the County. Furthermore, as a consequence of the reduced PV footprint associated with the utility-scale solar farm, this alternative would result in a reduced power production capacity as compared to the proposed project; hence, the overall benefits of the project to global climate change through the creation of renewable energy would also be reduced. As with the proposed project, this alternative would not conflict with any applicable plan, policy, or regulation for the purpose of reducing the emissions of greenhouse gases. Compared to the proposed project, although this alternative would result in reduced construction emissions at the project site, overall, a similar level of emissions would be expected.

Hydrology/Water Quality

This alternative would likely avoid any impacts associated with modifications to the existing drainage patterns and the volume of storm water runoff, as this alternative would introduce less impervious surface areas (this alternative would involve construction of PV facilities on existing structures and within existing developed areas). Also, this alternative would likely avoid any impacts to jurisdictional waters. Compared to the proposed project, this alternative would result in fewer impacts related to hydrology/water quality.

Land Use Planning

Similar to the proposed project, this alternative would not divide an established community and would involve multiple planning approvals (e.g., variances, CUPs, rezones) in order to accommodate the solar generating uses within other zones of the County that currently do not allow such uses. Compared to the proposed project, land use and planning impacts resulting from this alternative would be similar than those identified for the proposed project.

Transportation/Traffic

This alternative would not reduce or avoid an impact to transportation/traffic and would result in less than significant impacts similar to the proposed project. As with the proposed project, this alternative would not impact any applicable plan, ordinance, or policy addressing the performance of the circulation system, conflict with an applicable congestion management program, substantially increase hazards due to a design feature, result in inadequate emergency access, or conflict with public transit, bicycle, or pedestrian facilities. This alternative would result in a similar impact related to transportation/traffic as the proposed project.

Utilities and Service Systems

As with the proposed project, this alternative would require water service and energy for the operation of the projects. This alternative would involve the construction of transmission lines and development

of additional supporting facilities, such as switching stations and substations at various locations throughout the County to distribute the energy. Compared to the proposed project, this alternative could require the relocation or construction of new or expanded supporting energy infrastructure throughout the County. Compared to the proposed project, impacts associated with utilities and service systems resulting from this alternative could be potentially greater than those identified for the proposed project.

Conclusion

As shown on Table 7-1, implementation of Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative would result in reduced impacts for the following environmental issue areas as compared to the proposed project: hydrology/water quality. Overall, this alternative would result in greater impacts related to aesthetics, air quality, biological resources, cultural resources, tribal cultural resources, and utilities and service systems.

Comparison of Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative

Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative would meet most of the basic objectives of the proposed project. However, this alternative would result in greater impacts for the following environmental issue areas as compared to the proposed project: aesthetics, air quality, biological resources, cultural resources, and utilities and service systems. Furthermore, this alternative would have a number of drawbacks, including, but not limited to the following:

- Difficulties with respect to buildout of the system within a timeframe that would be similar to that of the proposed project;
- Given the distributed nature of such a network of facilities, management and maintenance would not be as efficient, and total capital costs would likely be higher;
- The requirement to negotiate with a large number of individual property owners to permit placement of solar panels on rooftops;
- The difficulty of ensuring proper maintenance of a large number of smaller solar installations; and
- The lack of an effective electricity distribution system for large numbers of small electricity producers.

7.8 Environmentally Superior Alternative

Table 7-1 provides a qualitative comparison of the impacts for each alternative compared to the proposed project. As noted on Table 7-1, the No Project/No Development Alternative would be considered the environmentally superior alternative, since it would eliminate all of the significant impacts identified for the project. However, CEQA Guidelines Section 15126.6(e)(2) states that "if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." As shown on Table 7-1, Alternative 2 and Alternative 3 would both result in less impacts on Land Use and Planning because they are located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. No Variance would be required under either of these alternatives because the proposed height of the transmission towers (70 feet)

would not exceed the 120 feet height limit of non-residential structures in the A-2-RE Zone or A-3 Zone. However, compared to the proposed project, the Alternative 2 site is located on agricultural lands and would result in the conversion of agricultural land to non-agricultural uses. Compared to the proposed project, this alternative would result in additional impacts (conversion of agricultural land to non-agricultural uses) that are currently not identified for the project at the currently proposed location. Based on these considerations, Alternative 3 is considered the Environmentally Superior Alternative.

Table 7-1. Comparison of Alternative Impacts to Proposed Project

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands	Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands	Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative
Aesthetics and Visual Resources	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact
Air Quality	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact
Biological Resources	Less than Significant with Mitigation	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact (Avoid)	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact
Cultural Resources	Less than Significant with Mitigation	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact (Avoid)	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact

Table 7-1. Comparison of Alternative Impacts to Proposed Project

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands	Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands	Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative
Geology and Soils	Less than Significant with Mitigation	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact (Avoid)	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Similar Impact
GHG Emissions	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact
Hydrology/ Water Quality	Less than Significant with Mitigation	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact (Avoid)	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Less Impact
Land Use/Planning	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact

Table 7-1. Comparison of Alternative Impacts to Proposed Project

Environmental Issue Area	Proposed Project	Alternative 1: No Project/No Development	Alternative 2: Development within Renewable Energy Overlay Zone – Agricultural Lands	Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands	Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative
Transportation/ Traffic	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact
Utilities/Service Systems	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Greater Impact

Notes:
CEQA=California Environmental Quality Act; GHG=greenhouse gas

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9 EIR Preparers and Persons and Organizations Contacted

9.1 EIR Preparers

This EIR was prepared for the County of Imperial by HDR at 591 Camino de la Reina, Suite 300, San Diego, CA 92108. The following professionals participated in its preparation:

County of Imperial

Jim Minnick, Planning & Development Services Director

Michael Abraham, AICP, Assistant Planning & Development Services Director

Patricia Valenzuela, Planner IV

Joe Hernandez, Planner IV

HDR

Tim Gnibus, Principal/Project Manager

Sharyn Del Rosario, Deputy Project Manager

Jade Dean, Geographic Information Systems Analyst

Renee Stueber, Document Production Administrator

HDR was assisted by the following consultants:

Barrett's Biological Surveys (Flat-Tailed Horned Lizard Survey)

2035 Forrester Road

El Centro, CA 92243

Dubose Design Group, Inc. (Water Supply Assessment)

1065 State Street

El Centro, CA 92243

Stantec Consulting Services, Inc. - San Francisco (Visual Resources Technical Report)

100 California Street, Suite 1000

San Francisco, CA 94111

Stantec Consulting Services, Inc. – San Bernardino (Glare Hazard Analysis Report, CEQA-Level Geotechnical Study)

735 East Carnegie Drive

San Bernardino, CA 92408

Stantec Consulting Services, Inc. – Thousand Oaks (Air Quality Technical Study, Biological Resources Technical Report, Preliminary Jurisdictional Waters/Wetlands Delineation Report, Water Quality Management Plan)

290 Conejo Ridge Avenue

Thousand Oaks, CA 91361

Tierra Environmental Services (Cultural Resources Survey)

9915 Businesspark Ave., Suite C

San Diego, CA 92131

9.2 Persons and Organizations Contacted

The following persons and organizations were contacted in preparation of this document:

- Imperial Irrigation District

Appendix A

Initial Study and Notice of Preparation and Responses

Notice of Preparation

To: Office of Planning & Research
(Agency)

P.O. Box 3044, 1400 Tenth Street, Room 212
(Address)

Sacramento, CA 95812-3044

Subject: Notice of Preparation of a Draft Environmental Impact Report

Lead Agency:		**Consulting Firm** (If applicable):	
Agency Name	Imperial County, Planning & Dev Svcs.	Firm Name	HDR
Street Address	801 Main Street	Street Address	591 Camino de la Reina, Suite 300
City/State/Zip	El Centro, CA 92243	City/State/Zip	San Diego, CA 92108
Contact	Patricia Valenzuela	Contact	Tim Gnibus

The County of Imperial will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the project identified below. We need to know the views of your agency as to the scope and content of the Environmental Information, which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study is attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but ***not later than 35 days*** after receipt of this notice.

Please send your response to Imperial County Planning & Development Services, Attn: Patricia Valenzuela at the address shown above. We will need the name for a contact person in your agency.

Project Title: Wister Solar Energy Facility Project

Project Location: The Wister Solar Energy Facility Project consists of four primary components: 1) solar generation equipment and associated facilities (herein referred to as "solar energy facility"); 2) gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing Imperial Irrigation District's (IID) 92-kilovolt (kV) "K" line; 3) fiberoptic cable; and, 4) upgrades to off-site IID facilities (92-kV line from New Mecca to the North Shore substation, and Niland substation). These components are collectively referred to as the "proposed project" or "project."

- ***Solar Energy Facility and Gen-Tie Line.*** The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County. The project site is located on one parcel of land identified as Assessor's Parcel Number 003-240-001. The parcel is approximately 640 acres and is currently zoned Open Space/Preservation with a geothermal overlay (S-2-G). The proposed project would be located on approximately 100 acres within the northwest portion of the 640-acre parcel. The project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road. As shown on Figure 1, the project site is located outside of the Renewable Energy Overlay Zone.

- ***Fiberoptic Cable.*** The proposed project includes approximately two miles of fiberoptic line from the proposed on-site substation to the existing Niland Substation, located at 402 Beal Road in Niland.
- ***Off-Site IID Facilities.*** The 92-kV line from New Mecca to the North Shore substation is located north of the Salton Sea in southeastern Riverside County. The North Shore Substation is located at the northeast corner of Club View Drive and Windlass Drive in the census-designated place of North Shore. The New Mecca Substation is located at the northeast corner of Hammond Road and Johnson Street in the unincorporated community of Mecca. The Niland substation is located at 402 Beal Road in Niland.

Project Description (brief)**:** The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 Megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres of privately-owned land north of Niland. The proposed project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables. The proposed project also includes approximately two miles of fiberoptic line from the proposed on-site substation to the existing Niland Substation to connect the proposed Wister Substation to the region's telecommunications system.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92-kV substation, which will be tied directly to IID's 92-kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92-kV "K" line. The project applicant has secured a Power Purchase Agreement with San Diego Gas and Electric for the sale of power from the project.

In order to support the proposed project, IID will need to upgrade ± 5 miles of the existing 92-kV line from New Mecca to the North Shore substation. This upgrade would consist of removal of the existing wood poles and installing new wood poles within the same disturbed right of way. In addition, the existing 795 all-aluminum conductor (AAC) conductor would be upgraded to 1033 AAC conductor, and new insulators, fittings, and hardware would be installed on the upgraded poles. IID would upgrade relay protection, control, Supervisory Control and Data Acquisition, and telecommunication capabilities for the 92-kV gen-tie and terminals at the New Mecca and Niland substations in support of the project.

Project Applicant: ORNI 21, LLC

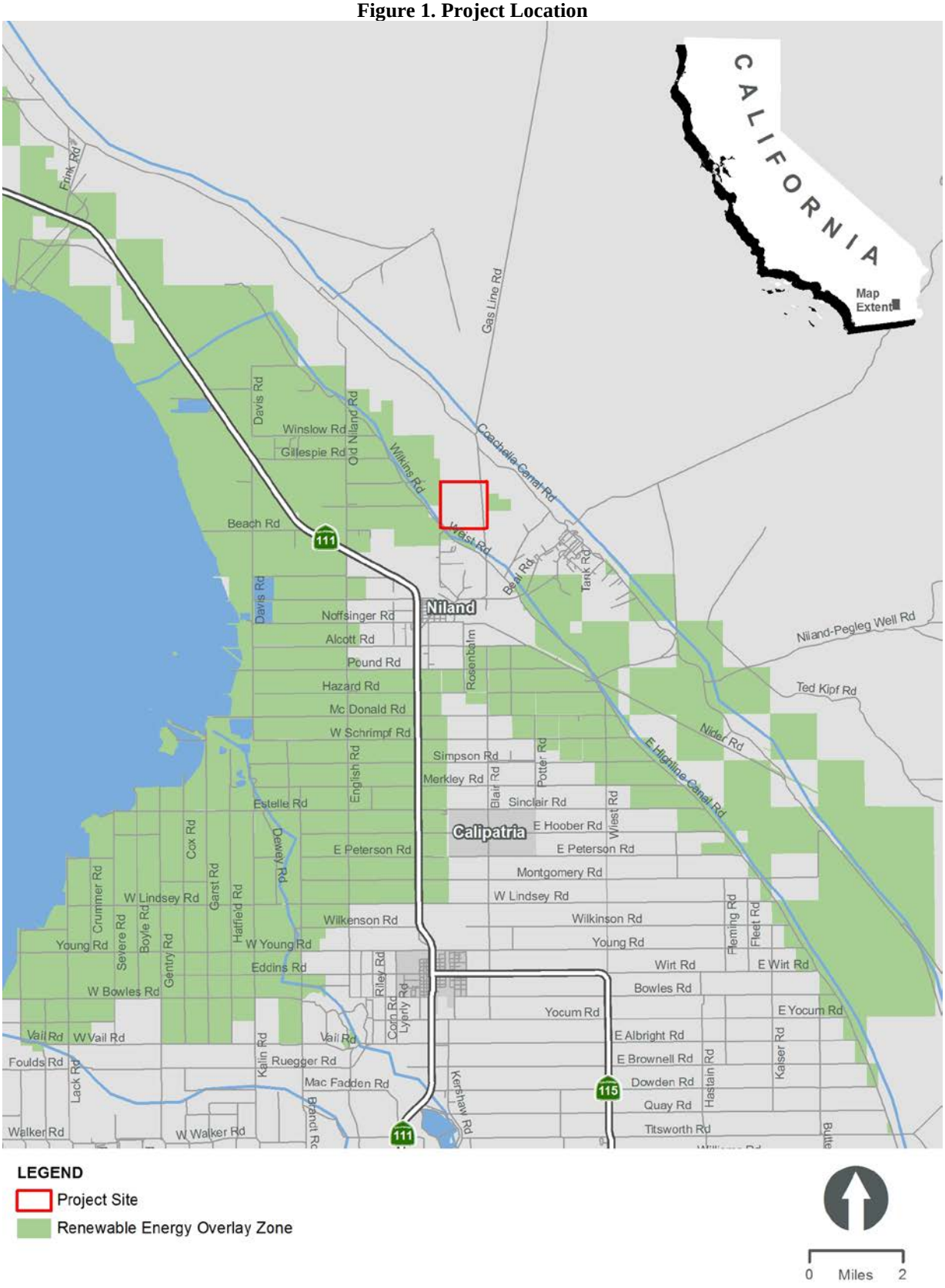
Date _____ Signature _____

Title _____

Telephone _____

Reference: California Administrative Code, Title 14, (CEQA Guidelines) Section 15082(a), 15103, 15375.

Figure 1. Project Location



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Imperial County
Planning & Development Services Department

NOTICE OF PREPARATION OF DRAFT EIR FOR WISTER SOLAR ENERGY FACILITY PROJECT AND NOTICE OF PUBLIC EIR SCOPING MEETING

The Imperial County Planning & Development Services Department intends to prepare an Environmental Impact Report (EIR) for the proposed Wister Solar Energy Facility Project as described below. A public scoping meeting for the proposed EIR will be held by the Imperial County Planning & Development Services Department on November 14 at 6:00 P.M. The scoping meeting will be held at the Board of Supervisors Chambers, 2nd Floor, County Administration Center located at 940 Main Street, El Centro, CA 92243. Comments regarding the scope of the EIR will be accepted at this meeting.

SUBJECT: Wister Solar Energy Facility Project EIR

BOARD OF SUPERVISORS CONSIDERATION: To Be Determined.

PROJECT LOCATION: The Wister Solar Energy Facility Project consists of four primary components: 1) solar generation equipment and associated facilities (herein referred to as "solar energy facility"); 2) gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing Imperial Irrigation District's (IID) 92-kilovolt (kV) "K" line; 3) fiberoptic cable; and, 4) upgrades to off-site IID facilities (92-kV line from New Mecca to the North Shore substation, and Niland substation). These components are collectively referred to as the "proposed project" or "project."

- ***Solar Energy Facility and Gen-Tie Line.*** The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County. The project site is located on one parcel of land identified as Assessor's Parcel Number 003-240-001. The parcel is approximately 640 acres and is currently zoned Open Space/Preservation with a geothermal overlay (S-2-G). The proposed project would be located on approximately 100 acres within the northwest portion of the 640-acre parcel. The project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road.The project site is located outside of the Renewable Energy Overlay Zone.
- ***Fiberoptic Cable.*** The proposed project includes approximately two miles of fiberoptic line from the proposed on-site substation to the existing Niland Substation, located at 402 Beal Road in Niland.
- ***Off-Site IID Facilities.*** The 92-kV line from New Mecca to the North Shore substation is located north of the Salton Sea in southeastern Riverside County. The North Shore Substation is located at the northeast corner of Club View Drive and Windlass Drive in the census-designated place of North Shore. The New Mecca Substation is located at the northeast corner of Hammond Road and Johnson Street in the unincorporated community of Mecca. The Niland substation is located at 402 Beal Road in Niland.

PROJECT DESCRIPTION: The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 Megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres of privately-owned land north of Niland. The proposed project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables. The proposed project also includes approximately two miles of fiberoptic line from the proposed on-site substation to the existing Niland Substation to connect the proposed Wister Substation to the region's telecommunications system.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92-kV substation, which will be tied directly to the Imperial Irrigation District's 92-kV transmission line. A gen-tie line would connect the Wister substation to the Point of Interconnection at the existing IID 92-kV "K" line. The project applicant has secured a Power Purchase Agreement with San Diego Gas and Electric for the sale of power from the project.

In order to support the proposed project, IID will need to upgrade ± 5 miles of the existing 92-kV line from New Mecca to the North Shore substation. This upgrade would consist of removal of the existing wood poles and installing new wood poles within the same disturbed right of way. In addition, the existing 795 all-aluminum conductor (AAC) conductor would be upgraded to 1033 AAC conductor, and new insulators, fittings, and hardware would be installed on the upgraded poles. IID would upgrade relay protection, control, Supervisory Control and Data Acquisition, and telecommunication capabilities for the 92-kV gen-tie and terminals at the New Mecca and Niland substations in support of the project.

PROJECT APPLICANT: ORNI 21, LLC

URBAN AREA PLAN: None, located in unincorporated area of County of Imperial

BOARD OF SUPERVISORS DISTRICT: District 4, Supervisor Ryan E. Kelley

ANTICIPATED SIGNIFICANT EFFECTS: The EIR will analyze potential impacts associated with the following: Aesthetics; Air Quality; Biological Resources; Cultural Resources; Paleontological Resources; Tribal Cultural Resources; Cumulative Impacts; Geology/Soils; Greenhouse Gas Emissions/Climate Change; Growth-inducing Impacts; Hydrology and Water Quality; Land Use and Planning; Transportation/Traffic; and Utilities and Service Systems including water supply.

COMMENTS REQUESTED: The Imperial County Planning & Development Services Department would like to know your ideas about the potential effects this project might have on the environment and your suggestions as to mitigation or ways the project may be revised to reduce or avoid any potentially significant environmental impacts. Your comments will guide the scope and content of potential environmental issues to be examined in the EIR. Your comments may be submitted in writing to Patricia Valenzuela, Imperial County Planning & Development Services Department, 801 Main Street, El Centro, CA 92243. Available project information may be reviewed at this location.

NOTICE OF PREPARATION REVIEW PERIOD: NOVEMBER 6, 2019 THROUGH DECEMBER 11, 2019

11341093

Project Description

3 Project Description

Chapter 3 provides a description of the Wister Solar Energy Project. This chapter also defines the goals and objectives of the proposed project, provides details regarding the individual components that together comprise the project, and identifies the discretionary approvals required for project implementation.

The proposed project consists of four primary components: 1) solar generation equipment and associated facilities (herein referred to as “solar energy facility”); 2) gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing Imperial Irrigation District’s (IID) 92-kilovolt (kV) “K” line; 3) fiberoptic cable; and, 4) upgrades to off-site IID facilities.

3.1 Project Location

3.1.1 Solar Energy Facility and Gen-Tie Line

The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County (Figure 3-1). The project site is located on one parcel of land identified as Assessor’s Parcel Number 003-240-001 (Figure 3-2). The parcel is approximately 640 acres and is currently zoned Open Space/Preservation with a geothermal overlay (S-2-G). The proposed project would be located on approximately 100 acres within the northwest portion of the 640-acre parcel. The project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (physical area where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road.

3.1.2 Fiberoptic Cable

The proposed project includes approximately two miles of fiberoptic line from the proposed on-site substation to the existing Niland Substation, located at 402 Beal Road in Niland.

3.1.3 Off-Site IID Facilities

In order to support the proposed project, IID will need to upgrade ± 5 miles of the existing 92-kV line from New Mecca to the North Shore Substation. These facilities are located north of the Salton Sea in southeastern Riverside County. The North Shore Substation is located at the northeast corner of Club View Drive and Windlass Drive in the census-designated place of North Shore. The New Mecca Substation is located at the northeast corner of Hammond Road and Johnson Street in the unincorporated community of Mecca.

IID would also need to upgrade relay protection, control, Supervisory Control and Data Acquisition (SCADA), and telecommunication capabilities for the 92-kV gen-tie and terminals at the New Mecca and Niland substations in support of the project. The Niland substation is located at 402 Beal Road in Niland.

3.1.4 Renewable Energy Overlay Zone

In 2016, the County adopted the Imperial County Renewable Energy and Transmission Element, which includes a RE Zone (RE Overlay Map). This General Plan element was created as part of the California Energy Commission Renewable Energy Grant Program to amend and update the County's General Plan to facilitate future development of renewable energy projects.

The County Land Use Ordinance, Division 17, includes the RE Overlay Zone, which authorizes the development and operation of renewable energy projects with an approved Conditional Use Permit (CUP). The RE Overlay Zone is concentrated in areas determined to be the most suitable for the development of renewable energy facilities while minimizing the impact on other established uses. CUP applications proposed for specific renewable energy projects not located in the RE Overlay Zone would not be allowed without an amendment to the RE Overlay Zone.

The County's General Plan and Land Use Ordinance allows for renewable energy projects proposed on land classified as a non-RE Overlay zone if the renewable energy project: 1) would be located adjacent to an existing RE Overlay Zone; 2) is not located in a sensitive area; 3) is located in proximity to renewable energy infrastructure; and, 4) and would not result in any significant environmental impacts.

As shown on Figure 3-1, the project site is located outside of the RE Overlay Zone. Therefore, the applicant is requesting a General Plan Amendment and Zone Change to add the project area to the County's RE Overlay Zone. No land use amendment is requested, and the underlying "Recreation" General Plan designation would remain.

Figure 3-1. Regional Location

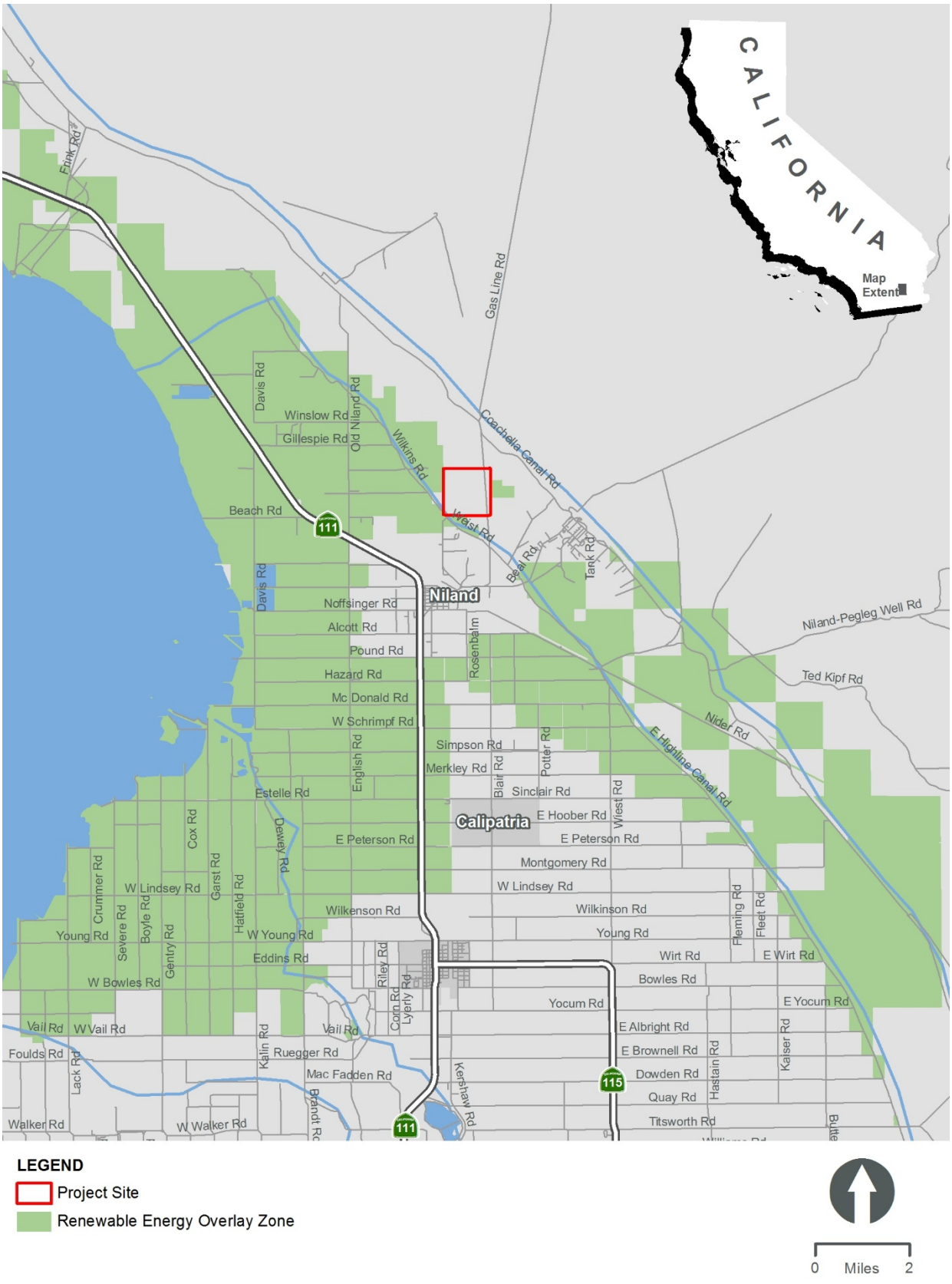


Figure 3-2. Project Site

3.2 Project Objectives

- Construct, operate and maintain an efficient, economic, reliable, safe and environmentally sound solar-powered electricity generating facility.
- Help meet California's Renewable Portfolio Standard (RPS) requirements, which require that by 2030, California's electric utilities are to obtain 50 percent of the electricity they supply from renewable sources.
- Generate renewable solar-generated electricity from proven technology, at a competitive cost, with low environmental impact, and deliver it to the local markets as soon as possible.
- Develop, construct, own and operate the Wister Solar Energy Facility, and ultimately sell its electricity and all renewable and environmental attributes to an electric utility purchaser under a long-term contract to meet California's RPS goals.
- Utilize a location that is in close proximity to an existing switching station and powerlines.
- Minimize and mitigate any potential impact to sensitive environmental resources within the project area.

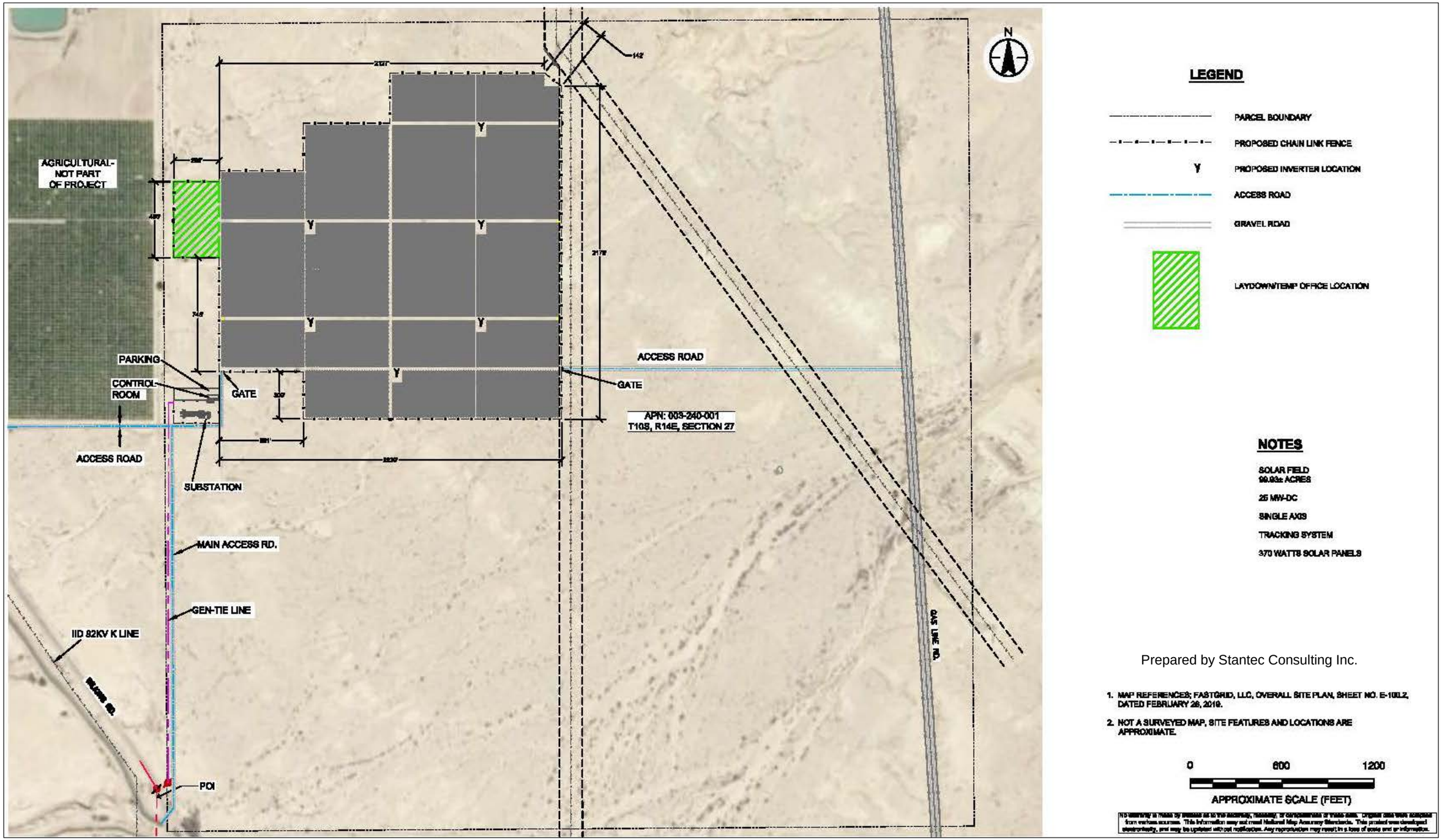
3.3 Project Characteristics

The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 Megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres of privately-owned land north of Niland. The proposed project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables. Figure 3-3 depicts the proposed site plan.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92-kV substation, which will be tied directly to the Imperial Irrigation District's 92-kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92-kV "K" line.

The project applicant has secured a Power Purchase Agreement (PPA) with San Diego Gas and Electric for the sale of power from the project.

Figure 3-3. Preliminary Site Plan



3.3.1 Photovoltaic Panels/Solar Arrays

PV solar cells convert sunlight directly into direct current (DC) electricity. The process of converting light (photons) to electricity (voltage) in a solid state process is called the photovoltaic effect. A number of individual PV cells are electrically arranged and connected into solar PV modules, sometimes referred to as solar panels.

The solar PV generating facility would consist of 3.5 foot by 4.8-foot PV modules (or panels) on single-axis horizontal trackers in blocks that each hold 2,520 PV panels. Figure 3-4 provides a representative example of single-axis horizontal trackers. The panels would be oriented from east to west for maximum exposure and the foundation would be designed based on soil conditions, with driven piles as the preferred method. The PV modules would be made of a poly-crystalline silicon semiconductor material encapsulated in glass. Installation of the PV arrays would include installation of mounting posts, module rail assemblies, PV modules, inverters, transformers and buried electrical conductors. Concrete would be required for the footings, foundations and pads for the transformers and substation work.

PV modules would be organized into electrical groups referred to as “blocks.” The proposed project would consist of 12 blocks. Every two blocks will be collected to an inverter and would typically encompass approximately 8 acres, including a pad for one transformer and one inverter. Approximately 96 acres of ground disturbance, including acreage for 12 blocks, is required for the proposed project. The proposed project would include design elements to reduce the potential glare impacts on adjacent sensitive receptors (e.g. local residents, aircraft, traveling public on adjacent County roads).

The electrical output from the PV modules would be low voltage DC power that would be collected and routed to a series of inverters and their associated pad-mounted transformers. Each array would have one inverter and one transformer, which are collectively known as a Power Conversion Station (PCS). The inverters would convert the DC power generated by the panels to AC power and the pad mounted transformers step up the voltage to a nominal level. The outputs from the transformers are grouped together in PV combining switchgear, which in turn supplies the switchyard, where the power is stepped up to 92-kV for interconnection with the transmission system.

Figure 3-4. Representative Example of Typical Single-Axis Tracking Solar Panels

3.3.2 Substation

The proposed Wister Substation would be a new 92/12-kV unstaffed, automated, low-profile substation. The dimensions of the fenced substation would be approximately 300 feet by 175 feet. The enclosed substation footprint would encompass approximately 1.2 acres of the approximately 640-acre project parcel. As shown on Figure 3-3, the proposed Wister Substation site would be located at the northwest quarter of the parcel, immediately southwest of the solar field. The California Building Code and the Institute of Electrical and Electronics Engineers (IEEE) 693, Recommended Practices for Seismic Design of Substations, will be followed for the substation's design, structures, and equipment. A representative example of a substation is presented on Figure 3-5.

Figure 3-5. Representative Example of Typical Substation Design

3.3.3 Fiberoptic Cable

A proposed fiberoptic line from the proposed Wister Substation would be connected with the existing Niland Substation approximately two miles to the south, which would then be added to connect the proposed Wister Substation to the region's telecommunications system. Overall, this would provide Supervisory Control and Data Acquisition (SCADA), protective relaying, data transmission, and telephone services for the proposed Wister Substation and associated facilities. New telecommunications equipment would be installed at the proposed Wister Substation within the Mechanical and Electrical Equipment Room (MEER). The proposed fiber optic telecommunications cable would utilize existing transmission lines to connect to the Niland Substation. The length of the proposed fiber optic telecommunications cable route would be approximately two miles.

3.3.4 Gen-Tie Line

As shown on Figure 3-3, a proposed gen-tie line would connect the Wister substation to the POI at the existing IID 92-kV "K" line. The proposed gen-tie line would originate at the proposed Wister

substation and would terminate at the POI, at a distance of approximately 2,500 feet to the south-southwest. Steel poles, standing at a maximum height of 70 feet tall, will be spaced approximately every 300 feet along the route, and would support the 92-kV conductor and fiberoptic cable to the POI. Construction of the 2,500-foot gen-tie line to the POI would utilize overland travel along the entire route.

3.3.5 Auxiliary Facilities

This section describes the auxiliary facilities that would be constructed and operated in conjunction with the solar facility.

Site Security and Fencing

The project site would be fenced with a 6-foot high chain link security fence topped with barbed wire. Points of ingress/egress would be accessed via locked gates.

Lighting System

Minimal lighting would be required for operations and would be limited to safety and security functions. All lighting would be directed downward and shielded to confine direct rays to the project site and muted to the maximum extent consistent with safety and operational necessity (Title 9, Division 17, Chapter 2: Specific Standards for all Renewable Energy Projects, of the County's Zoning Ordinance).

Access

A total of three access roads will service the proposed project. Access to the project site from the east would be located off Gas Line Road. Access to the project site from the west would include two routes: one route north from the southwest corner of the parcel off Wilkins Road (main access road), and another route off Wilkins Road just south of the existing orchard to the west of the project. These two access roads from the west would both lead to the same gate at the project site. All access roads would be constructed with an all-weather surface, to meet the County Fire Department's standards, and lead to a locked gate that can be opened by any emergency responders. Figure 3-3 illustrates the project site layout and access points.

An all-weather surface access road, to meet the County's standards, would surround the perimeter of the site, as well as around solar blocks no greater than 500 by 500 feet.

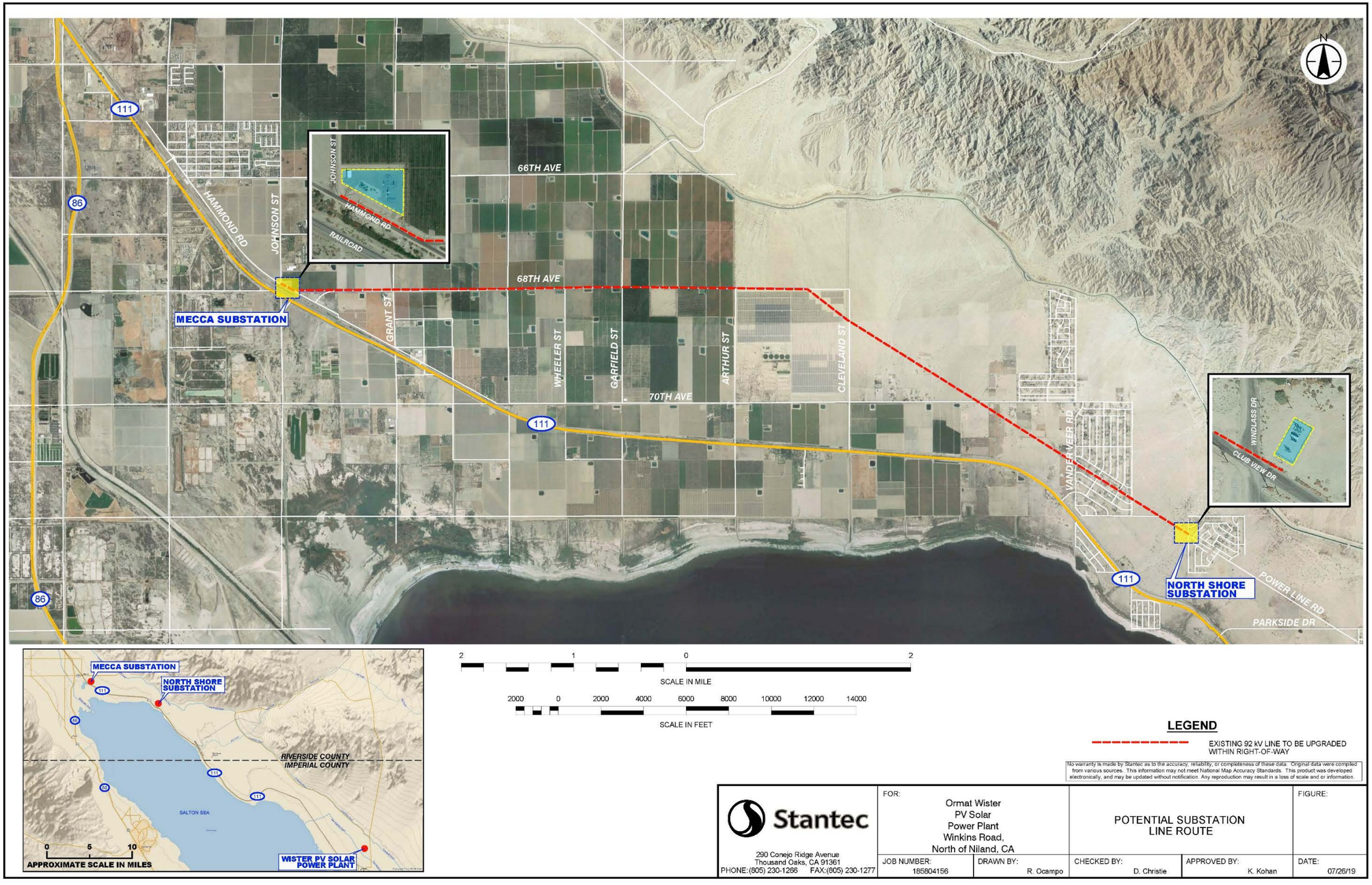
3.3.6 Upgrade of Existing IID 92-kV Line

In order to support the proposed project, IID will need to upgrade ± 5 miles of the existing 92-kV line from New Mecca to the North Shore substation (Figure 3-6). This upgrade would consist of removal of the existing wood poles (Class C1) and installing new wood poles (Class H2) within the same disturbed right of way. In addition, the existing 795 AAC conductor would be upgraded to 1033 AAC conductor, and new insulators, fittings, and hardware would be installed on the upgraded poles.

3.3.7 New Mecca and Niland Substation Upgrades

IID would upgrade relay protection, control, SCADA, and telecommunication capabilities for the 92-kV gen-tie and terminals at the New Mecca and Niland substations in support of the project.

Figure 3-6. Upgrade of IID's Existing 92-kV Line



3.4 Project Construction

3.4.1 Construction Sequence

Construction activities would be sequenced and conducted in a manner that addresses storm water management and soil conservation. During construction, electrical equipment would be placed in service at the completion of each 2,500-kW power-block. The activation of the power-blocks is turned over to interconnection following the installation of transformer and interconnection equipment upgrades. This in-service timing is critical because PV panels can produce power as soon as they are exposed to sunlight, and because the large number of blocks and the amount of time needed to commission each block requires commissioning to be integrated closely with construction on a block-by-block basis.

Construction would generally occur during daylight hours, Monday through Friday. However, non-daylight work hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. For example, during hot weather, it may be necessary to start work earlier to avoid pouring concrete during high ambient temperatures. If construction is to occur outside of the County's specified working hours, permission in writing will be sought at the time. Construction of the proposed project would occur in phases beginning with site preparation and grading and ending with equipment setup and commencement of commercial operations. Overall, construction would consist of three major phases over a period of approximately 6-9 months:

1. Site Preparation, which includes clearing grubbing, grading, service roads, fences, drainage, and concrete pads; (1 month)
2. PV system installation and testing, which includes installation of mounting posts, assembling the structural components, mounting the PV modules, wiring; (7 months) and
3. Site clean-up and restoration. (1 month)

Construction activities would be conducted in a manner consistent with Imperial County Codified Ordinance. Noise generating sources in Imperial County are regulated under the County of Imperial Codified Ordinances, Title 9, Division 7 (Noise Abatement and Control). Noise limits are established in Chapter 2 of this ordinance. Under Section 90702.00 of this rule, average hourly noise in residential areas is limited to 50 to 55 dB(A) from 7 AM to 10 PM, and to 45 to 50 dB(A) from 10 PM to 7 AM.

3.4.2 Workforce

The on-site workforce would consist of laborers, electricians, supervisory personnel, support personnel and construction management personnel. The average number of construction workers would be approximately 50-60 people per day.

3.4.3 Materials

The proposed project would require general construction materials (i.e., concrete, wood, metal, fuel, etc.) as well as the materials necessary to construct the proposed PV arrays. Most construction waste is expected to be non-hazardous and to consist primarily of cardboard, wood pallets, copper wire, scrap steel, common trash and wood wire spools. Although field equipment used during construction activities could contain various hazardous materials (i.e., hydraulic oil, diesel fuel,

grease, lubricants, solvents, adhesives, paints, etc.), these materials are not considered to be acutely hazardous and would be used in accordance with the manufacturer's specifications and all applicable regulations.

Each PV module would be constructed out of poly-crystalline silicon semiconductor material encapsulated in glass. Construction of the PV arrays will include installation of support beams, module rail assemblies, PV modules, inverters, transformers, and underground electrical cables. Concrete will be required for the footings, foundations, pads for transformers, and substation equipment. Concrete will be purchased from a local supplier and transported to the proposed project site by truck. The PCS housing the inverters will have a precast concrete base. Final concrete specifications will be determined during detailed design engineering in accordance with applicable building codes.

Table 3-1. Example Construction Equipment

Equipment	Use
1-ton crew trucks	Transport construction personnel
2-ton flatbed trucks; flatbed boom trucks	Haul and unload materials
Mechanic truck	Service and repair equipment
Aerial bucket trucks	Access poles, string conductor, and other uses
Shop vans	Store tools
Bulldozers	Grade pole sites; reclamation
Truck-mounted diggers or backhoes	Excavate
Small mobile cranes (12 tons)	Load and unload materials
Large mobile cranes (75 tons)	Erect structures
Transport	Haul poles and equipment
Drill rigs with augers	Excavate and install fences
Semi tractor-trailers	Haul structures and equipment
Splice trailers	Store splicing supplies
Air compressor	Operate air tools
Air tampers	Compact soil around structure foundations
Concrete trucks	Pour concrete
Dump trucks	Haul excavated materials/import backfill
Fuel and equipment fluid trucks	Refuel and maintain vehicles
Water trucks	Supress dust and fire

3.4.4 Site Preparation

Project construction would include the renovation of existing dirt roads to all-weather surfaces (to meet the County standards) from Wilkins Road just south of the orchard, and a new road would be graded west from Gas Line Road and a new road graded north from the southwest corner of the parcel off Wilkins Road. Construction of the proposed project would begin with clearing of existing brush and installation of fencing around the project boundary. A 20' road of engineering-approved aggregate will surround the site within the fencing.

Material and equipment staging areas would be established on-site within an approximate 4-acre area. The staging area would include an air-conditioned temporary construction office, a first-aid station and other temporary facilities including, but not limited to, sanitary facilities, worker parking, truck loading and unloading, and a designated area for assembling the support structures for the placement of PV modules. The location of the staging area would change as construction progresses throughout the project site. The project construction contractor would then survey, clear and grade road corridors in order to bring equipment, materials, and workers to the various areas under construction within the project site. Road corridors buried electrical lines, PV array locations and locations of other facilities may be flagged and staked in order to guide construction activities. In addition, water truck reloading stations would be established for dust control.

3.4.5 Start-up

PV system installation would include earthwork, grading and erosion control, as well as erection of the PV modules, mounting posts and associated electrical equipment. The PV modules require a moderately flat surface for installation and therefore some earthwork, including grading, fill, compaction and erosion control, may be required to accommodate the placement of PV arrays, concrete for foundations, access roads and/or drainage features. Construction of the PV arrays would be expected to take place at a rate of approximately 0.10 MW per day. Construction of the PV arrays would include installation of the mounting posts, module assemblies, PV modules, inverters, transformers and buried electrical conductors. The module assemblies would then be cut off at the appropriate heights since the center posts must be completely level. Field welding would be required to attach the module assemblies to the top of the mounting posts. Finally, the PV panels would be attached to the module assemblies. Heavy equipment lifters (e.g., forklift) would be required to get the module assemblies in position, while welding and cutting equipment would be necessary to cut off the posts at the appropriate height.

3.4.6 Construction Water Requirements

Approximately 20,000 to 30,000 gallons of water per day would initially be required for grading, dropping to much less for the remainder of the project construction. Construction water needs would be limited to earthwork, soil conditioning, dust suppression, and compaction efforts. During construction, water would be pulled from the East Highline Canal at the canal gate in the southwest corner of the project parcel.

3.4.7 Dust Suppression

The project would comply with all applicable air pollution control regulations. During the construction phase of the project, standard dust control measures would be used to mitigate emissions of fugitive dust. These may include watering or applying dust palliatives with low environmental toxicity to suppress dust during construction.

3.4.8 Clean-up and Demobilization

After construction is complete, all existing roads would be left in a condition equal to or better than their preconstruction condition. All other areas disturbed by construction activities would be recontoured and decompacted.

Waste materials and debris from construction areas would be collected, hauled away, and disposed of at approved landfill sites. Cleared vegetation would be shredded and distributed over the

disturbed site as mulch and erosion control or disposed of offsite, depending on agency agreements. Rocks removed during foundation excavation would be redistributed over the disturbed site to resemble adjacent site conditions. Interim reclamation would include re-contouring of impacted areas to match the surrounding terrain, and cleaning trash out of gullies. Equipment used could include a blader, front-end loader, tractor, and a dozer with a ripper.

A covered portable dumpster would be kept on site to contain any trash that can be blown away. After completion of the proposed project, the project engineer would complete a final walk-through and note any waste material left on site and any ruts or terrain damage or vegetation disturbance that has not been repaired.

3.5 Operations and Maintenance

Once fully constructed, the proposed project would be operated on an unstaffed basis and be monitored remotely, with periodic on-site personnel visitations for security, maintenance and system monitoring. Therefore, no full-time site personnel would be required on-site during operations and employees would only be on-site four times per year to wash the panels. As the project's PV arrays produce electricity passively, maintenance requirements are anticipated to be very minimal. Any required planned maintenance activities would generally consist of equipment inspection and replacement and would be scheduled to avoid peak load periods. Any unplanned maintenance would be responded to as needed, depending on the event.

Estimated annual water consumption for operation and maintenance of the proposed project, including periodic PV module washing, would be approximately 0.81-acre feet annually (af/y). Water would be pulled from the East Highline Canal at the canal gate in the southwest corner of the project parcel and trucked into the project site.

3.6 Facility Decommissioning

Solar equipment has a lifespan of approximately 20 to 25 years. At the end of the project's operation term, the applicant may determine that the project should be decommissioned and deconstructed. Should the project be decommissioned, concrete footings, foundations, and pads would be removed using heavy equipment and recycled at an off-site location. All remaining components would be removed, and all disturbed areas would be reclaimed and recontoured.

3.7 Required Project Approvals

3.7.1 Imperial County

The County would be required to approve the following pursuant to CEQA:

1. **Approval of Conditional Use Permit.** Implementation of the project would require the approval of a CUP by the County to allow for the construction and operation of the proposed solar energy facility project. The project site is located on one privately-owned legal parcel zoned Open Space/Preservation with a geothermal overlay (S-2-G). Pursuant to Title 9, Division 5, Chapter 19, the following uses are permitted in the S-2 zone subject to approval of a CUP from Imperial County: Major facilities relating to the generation and transmission of electrical energy provided such facilities are not under State or Federal law, to approved exclusively by an agency, or agencies of the State or Federal government, and provided

such facilities shall be approved subsequent to coordination review of the Imperial Irrigation District for electrical matters. Such uses shall include but be limited to the following:

- Electrical generation plants
- Facilities for the transmission of electrical energy (100-200 kV)
- Electrical substations in an electrical transmission system (500 kv/230 kv/161 kV)

2. **General Plan Amendment.** An amendment to the County's General Plan, Renewable Energy and Transmission Element is required to implement the proposed project. CUP applications proposed for specific renewable energy projects not located in the RE Overlay Zone would not be allowed without an amendment to the RE Overlay Zone. The project site is located outside of the RE Overlay Zone; therefore, the applicant is requesting a General Plan Amendment to include/classify the project site into the RE Overlay Zone. No change in the underlying general plan land use is proposed.
3. **Zone Change.** The project site is not located in the RE Overlay Zone; therefore, the applicant is requesting a zone change to include/classify the project site into the RE Overlay Zone.
4. **Variance.** A variance is required to exceed the height limit for transmission towers within the S-2 zone. The existing S-2 zone allows a maximum height limit of 40 feet; whereas implementation of the project may involve the construction of transmission towers of up to 70 feet in height. Therefore, a variance for any structure exceeding the existing maximum height limit of 40 feet would be required.
5. **Certification of the EIR.** After the required public review for the Draft EIR, the County will respond to written comments, edit the document, and produce a Final EIR to be certified by the Planning Commission and Board of Supervisors prior to making a decision on the project.

Subsequent ministerial approvals may include, but are not limited to:

- Grading and clearing permits
- Building permits
- Reclamation plan
- Encroachment permits
- Transportation permit(s)

3.7.2 Discretionary Actions and Approvals by Other Agencies

Responsible Agencies are those agencies that have discretionary approval over one or more actions involved with development of the project. Trustee Agencies are state agencies that have discretionary approval or jurisdiction by law over natural resources affected by a project. These agencies may include, but are not limited to the following:

- California Regional Water Quality Control Board – Notice of Intent for General Construction Permit, Clean Water Act 401 Water Quality Certification
- Imperial County Air Pollution Control District – Fugitive Dust Control Plan, Rule 801 Compliance

- California Department of Fish and Wildlife Service (Trustee Agency) – Endangered Species Act Compliance, Section 1600 Streambed Alteration Agreement
- U.S. Fish and Wildlife Service – Endangered Species Act Compliance
- U.S. Army Corps of Engineers – Section 404 of the Clean Water Act Permit

3.7.3 Potential Actions/Approvals by Other Agencies

The proposed off-site improvements (pole replacement and the fiber optic cable) may require actions or approvals by the following agencies:

- Imperial Irrigation District – for any approvals related to the fiber optic cable and IID 92-kV line upgrades
- County of Riverside – for any approvals that may be triggered by work necessary for the installation of that portion of the IID 92-kV line and substation upgrades located within County of Riverside jurisdiction

Initial Study

Initial Study and NOP

Wister Solar Energy Facility Project

Imperial County, CA

November 2019

Reviewed by:

County of Imperial

Planning & Development Services Department

801 Main Street

El Centro, CA 92243

Prepared by:

HDR Engineering, Inc.

591 Camino de la Reina, Suite 300

San Diego, CA 92108

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Contents

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Introduction

A. Purpose

This document is a ☐ policy-level; ☒ project-level Initial Study for evaluation of potential environmental impacts resulting with the proposed Wister Solar Energy Facility Project.

B. CEQA Requirements and the Imperial County's Rules and Regulations for Implementing CEQA

As defined by Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines and Section 7 of the County's Rules and Regulations for Implementing CEQA, an **Initial Study** is prepared primarily to provide the Lead Agency with information to use as the basis for determining whether an Environmental Impact Report (EIR), Negative Declaration, or Mitigated Negative Declaration would be appropriate for providing the necessary environmental documentation and clearance for any proposed project.

☒ According to Section 15065, an **EIR** is deemed appropriate for a particular proposal if the following conditions occur:

- The proposal has the potential to substantially degrade quality of the environment.
- The proposal has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- The proposal has possible environmental effects that are individually limited but cumulatively considerable.
- The proposal could cause direct or indirect adverse effects on human beings.

☐ According to Section 15070(a), a **Negative Declaration** is deemed appropriate if the proposal would not result in any significant effect on the environment.

☐ According to Section 15070(b), a **Mitigated Negative Declaration** is deemed appropriate if it is determined that though a proposal could result in a significant effect, mitigation measures are available to reduce these significant effects to insignificant levels.

This Initial Study has determined that the proposed applications will result in potentially significant environmental impacts and therefore, an Environmental Impact Report is deemed as the appropriate document to provide necessary environmental evaluations and clearance for the proposed project.

This Initial Study and Notice of Preparation are prepared in conformance with the California Environmental Quality Act of 1970, as amended (Public Resources Code, Section 21000 et. seq.); the State CEQA Guidelines & County of Imperial's CEQA Regulations, Guidelines for the Implementation of CEQA; applicable requirements of the County of Imperial; and the regulations, requirements, and procedures of any other responsible public agency or an agency with jurisdiction by law.

Pursuant to the County of Imperial's CEQA Regulations, Guidelines for the Implementation of CEQA, depending on the project scope, the County of Imperial Board of Supervisors, Planning

Commission and/or Planning Director is designated the Lead Agency, in accordance with Section 15050 of the CEQA Guidelines. The Lead Agency is the public agency which has the principal responsibility for approving the necessary environmental clearances and analyses for any project in the County.

C. Intended Uses of Initial Study and Notice of Preparation

This Initial Study and Notice of Preparation are informational documents which are intended to inform County of Imperial decision makers, other responsible or interested agencies, and the general public of potential environmental effects of the proposed applications. The environmental review process has been established to enable public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any potentially adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the Lead Agency and other responsible public agencies must balance adverse environmental effects against other public objectives, including economic and social goals.

The Initial Study and Notice of Preparation, prepared for the project will be circulated for a period of no less than 35 days for public and agency review and comments.

D. Contents of Initial Study and Notice of Preparation

This Initial Study is organized to facilitate a basic understanding of the existing setting and environmental implications of the proposed applications.

SECTION 1

I. INTRODUCTION presents an introduction to the entire report. This section discusses the environmental process, scope of environmental review, and incorporation by reference documents.

SECTION 2

II. ENVIRONMENTAL CHECKLIST FORM contains the County's Environmental Checklist Form. The checklist form presents results of the environmental evaluation for the proposed applications and those issue areas that would have either a significant impact, potentially significant impact, or no impact.

PROJECT SUMMARY, LOCATION AND ENVIRONMENTAL SETTINGS describes the proposed project entitlements and required applications. A description of discretionary approvals and permits required for project implementation is also included. It also identifies the location of the project and a general description of the surrounding environmental settings.

ENVIRONMENTAL ANALYSIS evaluates each response provided in the environmental checklist form. Each response checked in the checklist form is discussed and supported with sufficient data and analysis as necessary. As appropriate, each response discussion describes and identifies specific impacts anticipated with project implementation.

SECTION 3

III. MANDATORY FINDINGS presents Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

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E. Scope of Environmental Analysis

For evaluation of environmental impacts, each question from the Environmental Checklist Form is summarized and responses are provided according to the analysis undertaken as part of the Initial Study. Impacts and effects will be evaluated and quantified, when appropriate. To each question, there are four possible responses, including:

1. No Impact: A “No Impact” response is adequately supported if the impact simply does not apply to the proposed applications.
2. Less Than Significant Impact: The proposed applications will have the potential to impact the environment. These impacts, however, will be less than significant; no additional analysis is required.
3. Less Than Significant With Mitigation Incorporated: This applies where incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact."
4. Potentially Significant Impact: The proposed applications could have impacts that are considered significant. Additional analyses and possibly an EIR could be required to identify mitigation measures that could reduce these impacts to less than significant levels.

F. Policy-Level or Project-Level Environmental Analysis

This Initial Study will be conducted under a ☐ policy-level, ☒project-level analysis.

Regarding mitigation measures, it is not the intent of this document to “overlap” or restate conditions of approval that are commonly established for future known projects or the proposed applications. Additionally, those other standard requirements and regulations that any development must comply with, that are outside the County’s jurisdiction, are also not considered mitigation measures, and therefore, will not be identified in this document.

G. Tiered Documents and Incorporation by Reference

Information, findings, and conclusions contained in this document are based on incorporation by reference of tiered documentation, which are discussed in the following section.

1. Tiered Documents

As permitted in Section 15152(a) of the CEQA Guidelines, information and discussions from other documents can be included into this document. Tiering is defined as follows:

“Tiering refers to using the analysis of general matters contained in a broader EIR (such as the one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project.”

Tiering also allows this document to comply with Section 15152(b) of the CEQA Guidelines, which discourages redundant analyses, as follows:

“Agencies are encouraged to tier the environmental analyses which they prepare for separate but related projects including the general plans, zoning changes, and development

projects. This approach can eliminate repetitive discussion of the same issues and focus the later EIR or negative declaration on the actual issues ripe for decision at each level of environmental review. Tiering is appropriate when the sequence of analysis is from an EIR prepared for a general plan, policy or program to an EIR or negative declaration for another plan, policy, or program of lesser scope, or to a site-specific EIR or negative declaration."

Further, Section 15152(d) of the CEQA Guidelines states:

"Where an EIR has been prepared and certified for a program, plan, policy, or ordinance consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program, plan, policy, or ordinance should limit the EIR or negative declaration on the later project to effects which:

(1) Were not examined as significant effects on the environment in the prior EIR; or

(2) Are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means."

2. **Incorporation by Reference**

Incorporation by reference is a procedure for reducing the size of EIRs/MND and is most appropriate for including long, descriptive, or technical materials that provide general background information, but do not contribute directly to the specific analysis of the project itself. This procedure is particularly useful when an EIR or Negative Declaration relies on a broadly-drafted EIR for its evaluation of cumulative impacts of related projects (*Las Virgenes Homeowners Federation v. County of Los Angeles* [1986, 177 Ca.3d 300]). If an EIR or Negative Declaration relies on information from a supporting study that is available to the public, the EIR or Negative Declaration cannot be deemed unsupported by evidence or analysis (*San Francisco Ecology Center v. City and County of San Francisco* [1975, 48 Ca.3d 584, 595]).

When an EIR or Negative Declaration incorporates a document by reference, the incorporation must comply with Section 15150 of the CEQA Guidelines as follows:

- The incorporated document must be available to the public or be a matter of public record (CEQA Guidelines Section 15150[a]). The General Plan EIR is available, along with this document, at the County of Imperial Planning & Development Services Department, 801 Main Street, El Centro, CA 92243 Ph. (442) 265-1736.
- This document must be available for inspection by the public at an office of the lead agency (CEQA Guidelines Section 15150[b]). These documents are available at the County of Imperial Planning & Development Services Department, 801 Main Street, El Centro, CA 92243, Ph. (442) 265-1736.
- These documents must summarize the portion of the document being incorporated by reference or briefly describe information that cannot be summarized. Furthermore, these documents must describe the relationship between the incorporated information and the analysis in the tiered documents (CEQA Guidelines Section 15150[c]). As discussed above, the tiered EIRs address the entire project site and provide background and inventory information and data which apply to the project site. Incorporated information and/or data will be cited in the appropriate sections.

- These documents must include the State identification number of the incorporated documents (CEQA Guidelines Section 15150[d]). The State Clearinghouse Number for the ‘County of Imperial General Plan EIR is SCH #93011023.

The material to be incorporated in this document will include general background information (CEQA Guidelines Section 15150[f])

Environmental Checklist Form

1. **Project Title:** Wister Solar Energy Facility Project

2. **Lead Agency name and address:** Imperial County Planning & Development Services Department, 801 Main Street, El Centro, CA 92243

3. **Contact person and phone number:** Patricia Valenzuela, Planner IV, 442-265-1749

4. **Project location:** The Wister Solar Energy Facility Project consists of four primary components: 1) solar generation equipment and associated facilities (herein referred to as "solar energy facility"); 2) gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing Imperial Irrigation District's (IID) 92 kilovolt (kV) "K" line; 3) fiberoptic cable; and, 4) upgrades to off-site IID facilities (92-kV line from New Mecca to the North Shore substation, and Niland substation). These components are collectively referred to as the "proposed project" or "project."

   - ***Solar Energy Facility and Gen-Tie Line.*** The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County (Figure 1). The project site is located on one parcel of land identified as Assessor's Parcel Number 003-240-001 (Figure 2). The parcel is approximately 640 acres and is currently zoned Open Space/Preservation with a geothermal overlay (S-2-G). The proposed project would be located on approximately 100 acres, in the northwest portion of the 640-acre parcel. The project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road.

   - ***Fiberoptic Cable.*** The proposed project includes approximately two miles of fiberoptic line from the proposed on-site substation to the existing Niland Substation, located at 402 Beal Road in Niland.

   - ***Off-Site IID Facilities.*** The 92-kV line from New Mecca to the North Shore substation is located north of the Salton Sea in southeastern Riverside County. The North Shore Substation is located at the northeast corner of Club View Drive and Windlass Drive in the census-designated place of North Shore. The New Mecca Substation is located at the northeast corner of Hammond Road and Johnson Street in the unincorporated community of Mecca. The Niland substation is located at 402 Beal Road in Niland.

5. **Project sponsor's name and address:** ORNI 21, LLC, 6140 Plumas Street, Reno, Nevada 89519

6. **General Plan designation:** Recreation

7. **Zoning:** Open Space/Preservation with a geothermal overlay (S-2-G)

8. **Description of project:** The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 Megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres of privately-owned land north of Niland. The proposed project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables. The proposed

project also includes approximately two miles of fiberoptic line from the proposed on-site substation to the existing Niland Substation to connect the proposed Wister Substation to the region's telecommunications system.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92-kV substation, which will be tied directly to IID's 92-kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92-kV "K" line. The project applicant has secured a Power Purchase Agreement with San Diego Gas and Electric for the sale of power from the project.

In order to support the proposed project, IID will need to upgrade ± 5 miles of the existing 92-kV line from New Mecca to the North Shore substation. This upgrade would consist of removal of the existing wood poles and installing new wood poles within the same disturbed right of way. In addition, the existing 795 all-aluminum conductor (AAC) conductor would be upgraded to 1033 AAC conductor, and new insulators, fittings, and hardware would be installed on the upgraded poles. IID would upgrade relay protection, control, Supervisory Control and Data Acquisition, and telecommunication capabilities for the 92-kV gen-tie and terminals at the New Mecca and Niland substations in support of the project.

9. **Surrounding land uses and setting: Briefly describe the project's surroundings:** The project site is generally surrounded to the north, east, and south by vacant land. A private road and the East Highline Canal border the project site to the south. Existing transmission lines border the project site to the east. An agricultural field lies to the northwest of the project site.

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.):**

    - Department of Public Works – Ministerial permits (building, grading, encroachment)
    - Imperial County Air Pollution Control District – Fugitive dust control plan, Authority to construct
    - California Regional Water Quality Control Board – Notice of Intent for General Construction Permit

11. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?**

    Yes, the Torrez Martinez Desert Cahuilla Indians and Quechan Indian Tribe. These tribes were sent an AB 52 and SB 18 consultation request letter.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☒	Aesthetics	☐	Agriculture and Forestry Resources	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☐	Energy
☒	Geology/Soils	☒	Greenhouse Gas Emissions	☐	Hazards & Hazardous Materials
☒	Hydrology / Water Quality	☒	Land Use/Planning	☐	Mineral Resources
☐	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	☒	Transportation	☒	Tribal Cultural Resources
☒	Utilities/Service Systems	☐	Wildfire	☒	Mandatory Findings of Significance

Environmental Evaluation Committee Determination

After Review of the Initial Study, the Environmental Evaluation Committee (EEC) has:

☐ Found that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ Found that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ Found that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ Found that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ Found that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

CALIFORNIA DEPARTMENT OF FISH AND GAME DE MINIMIS IMPACT FINDING:

☐Yes ☐No

EEC VOTES	YES	NO	ABSENT
PUBLIC WORKS	☐	☐	☐
ENVIRONMENTAL HEALTH	☐	☐	☐
OFFICE EMERGENCY SERVICES	☐	☐	☐
APCD	☐	☐	☐
AG	☐	☐	☐
SHERIFF DEPARTMENT	☐	☐	☐
ICPDS	☐	☐	☐

Signature

Date:

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Project Summary

Project Location

The Wister Solar Energy Facility Project consists of four primary components: 1) solar generation equipment and associated facilities (herein referred to as “solar energy facility”); 2) gen-tie line that would connect the proposed on-site substation to the POI at the existing IID’s 92-kV “K” line; 3) fiberoptic cable; and, 4) upgrades to off-site IID facilities (92-kV line from New Mecca to the North Shore substation, and Niland substation). These components are collectively referred to as the “proposed project” or “project.”

- **Solar Energy Facility and Gen-Tie Line.** The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County (Figure 1). The project site is located on one parcel of land identified as Assessor’s Parcel Number 003-240-001 (Figure 2). The parcel is approximately 640 acres and is currently zoned Open Space/Preservation with a geothermal overlay (S-2-G). The proposed project would be located on approximately 100 acres, in the northwest portion of the 640-acre parcel. The project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road.
- **Fiberoptic Cable.** The proposed project includes approximately two miles of fiberoptic line from the proposed on-site substation to the existing Niland Substation, located at 402 Beal Road in Niland.
- **Off-Site IID Facilities.** The 92-kV line from New Mecca to the North Shore substation is located north of the Salton Sea in southeastern Riverside County. The North Shore Substation is located at the northeast corner of Club View Drive and Windlass Drive in the census-designated place of North Shore. The New Mecca Substation is located at the northeast corner of Hammond Road and Johnson Street in the unincorporated community of Mecca. The Niland substation is located at 402 Beal Road in Niland.

Project Summary

The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 MW PV solar energy facility on approximately 100 acres of privately-owned land north of Niland. The proposed project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables. The proposed project also includes approximately two miles of fiberoptic line from the proposed on-site substation to the existing Niland Substation to connect the proposed Wister Substation to the region’s telecommunications system.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92-kV substation, which will be tied directly to IID’s 92-kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92-kV “K” line. The project applicant has secured a Power Purchase Agreement with San Diego Gas and Electric for the sale of power from the project.

In order to support the proposed project, IID will need to upgrade ± 5 miles of the existing 92-kV line from New Mecca to the North Shore substation. This upgrade would consist of removal of the existing wood poles and installing new wood poles within the same disturbed right of way. In addition, the existing 795 AAC conductor would be upgraded to 1033 AAC conductor, and new insulators, fittings, and hardware would be installed on the upgraded poles. IID would upgrade relay protection, control, Supervisory Control and Data Acquisition, and telecommunication capabilities for the 92-kV gen-tie and terminals at the New Mecca and Niland substations in support of the project.

Environmental Setting

The project site is generally surrounded to the north, east, and south by vacant land. A private road and the East Highline Canal border the project site to the south. Existing transmission lines border the project site to the east. An agricultural field lies to the northwest of the project site.

General Plan Consistency

The proposed project is located within the unincorporated area of Imperial County. The existing General Plan land use designation is “Recreation.” The project site is currently zoned Open Space/Preservation with a geothermal overlay (S-2-G). Construction of a solar facility would be allowed within the existing zoning under a Conditional Use Permit.

Figure 1. Regional Location

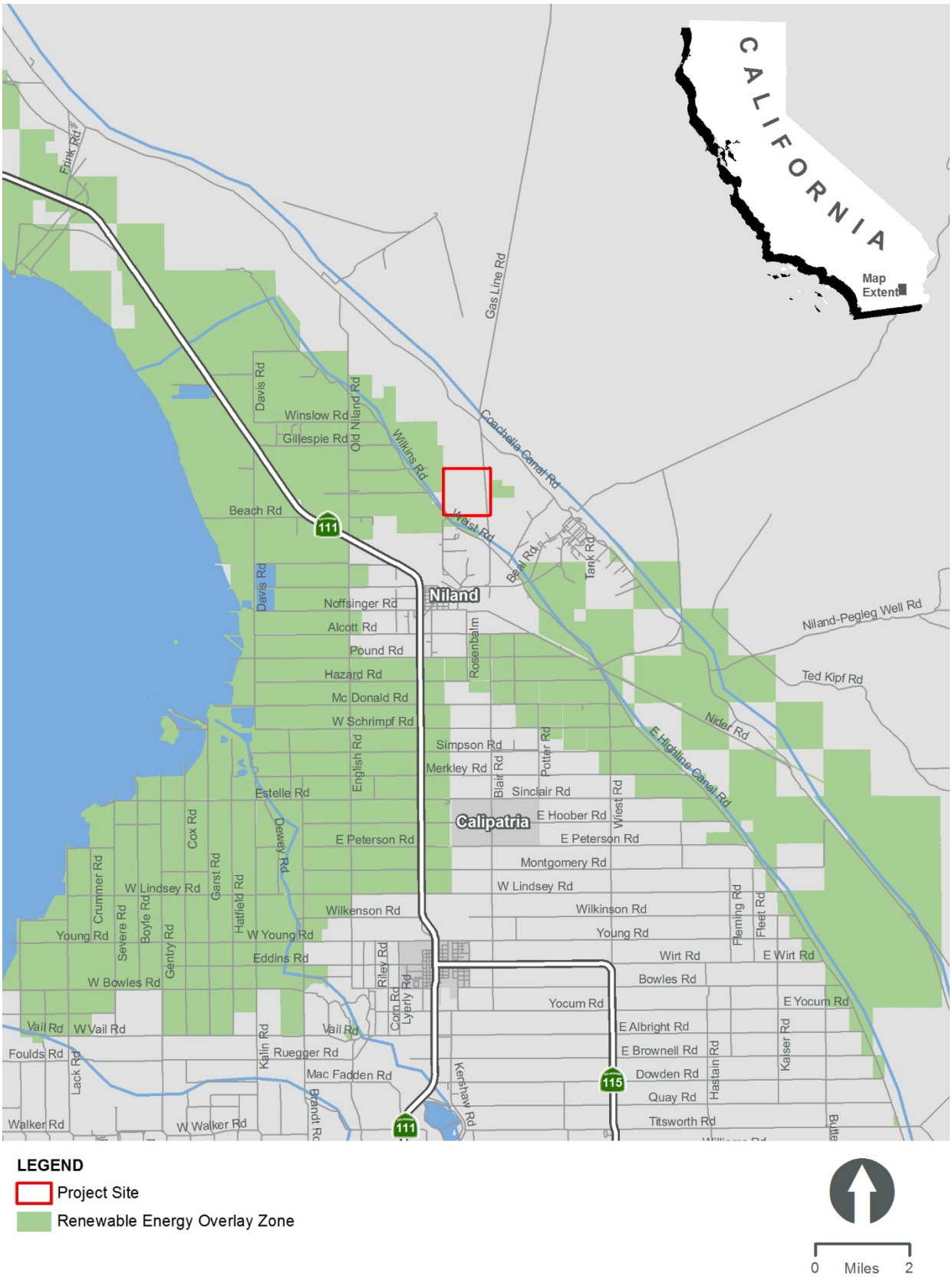

Figure 2. Project Site

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Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors, as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

a. Earlier Analysis Used. Identify and state where they are available for review.

b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:

a. The significance criteria or threshold, if any, used to evaluate each question; and

b. The mitigation measure identified, if any, to reduce the impact to less than significance.

I. Aesthetics

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☒	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

Impact Analysis

a) **No Impact.** The project site is not located within an area that has been formally designated as a federal, state, or county scenic vista. No scenic vistas or areas with high visual quality would be disrupted. Thus, no impact is identified for this issue area.

b) **No Impact.** According to the Caltrans California Scenic Highway Mapping System (Caltrans 2011), the project site is not located within a state scenic highway corridor, nor are there any state scenic highways located in proximity to the project site.

c) **Potentially Significant Impact.** Although the project is not located near a scenic highway or designated scenic vista, the proposed project may result in a change to the look and rural character of the area. A potentially significant impact is identified, and this issue will be addressed in the EIR.

d) **Potentially Significant Impact.** The proposed project would not include any source of substantial nighttime lighting. Any lighting required for safety and security within the project site would be shielded and oriented downward. The project is located in a rural undeveloped area of Imperial County. There are no established residential neighborhoods immediately adjacent to the project site. The Chocolate Mountains are located to the north and east of the project site. The Chocolate Mountains are used by the United States Marine Corps for training purposes. Although the solar panels will be constructed of low reflective materials, the potential for glare to impact United States Marine Corps aircraft will be analyzed further in the EIR. Therefore, a potentially significant impact is identified for this issue area.

II. Agriculture and Forestry Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Impact Analysis

a) **No Impact.** According to the farmland maps prepared by the California Department of Conservation (2016), the project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The proposed project would not convert Important Farmland. Therefore, no impact is identified for this issue area.

b) **No Impact.** The project site is currently designated by the General Plan as "Recreation" and is zoned Open Space/Preservation with a geothermal overlay (S-2-G). According to the 2016/2017 Imperial County Williamson Act Map produced by the California Department of Conservation's Division of Land Resource

Protection, the project site is not located on Williamson Act contracted land. The proposed project has no potential to conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, no impact is identified for this issue area.

c) **No Impact.** There are no existing forest lands, timberlands, or timberland zoned “Timberland Production” either on site or in the immediate vicinity that would conflict with existing zoning or cause rezoning. Therefore, no impact is identified for this issue area.

d) **No Impact.** There are no existing forest lands either on site or in the immediate vicinity of the project site. The proposed project would not result in the loss of forest land or conversion of forest land to non-forest use. Therefore, no impact is identified for this issue area.

e) **No Impact.** As discussed in Response II. a) above, the project site does not contain any lands mapped by the California Department of Conservation as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The project site is not used for agricultural production. Implementation of the proposed project would not convert any farmland to non-agricultural uses. Therefore, no impact is identified for this issue area.

III. Air Quality

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☒	☐	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?	☐	☐	☐	☒

Impact Analysis

a) **Potentially Significant Impact.** The project site is located within the jurisdiction of Imperial County Air Pollution Control District in the Salton Sea Air Basin. Construction of the project would create temporary emissions of dust, fumes, equipment exhaust, and other air contaminants that may conflict with the Imperial County Air Pollution Control District's rules and regulations. No station source emissions are proposed from the project; however, temporary construction emissions have the potential to result in a significant air quality impact.

b) **Potentially Significant Impact.** Currently, the Salton Sea Air Basin is either in attainment or unclassified for all federal and state air pollutant standards, with the exception of O_3 (8-hour) and PM_{10} (total suspended particulate matter less than 10 microns in diameter). Air pollutants transported into the Salton Sea Air Basin from the adjacent South Coast Air Basin (Los Angeles County, San Bernardino County, Orange County, and Riverside County) and Mexicali (Mexico) substantially contribute to the non-attainment conditions in the Salton Sea Air Basin. A potentially significant impact is identified for this issue area. An air quality impact study that will address the proposed project's potential air quality impacts will be prepared and included in the EIR analysis.

c) **Potentially Significant Impact.** The project site is located in a rural agricultural area of Imperial County. Sensitive receptors located within one mile of the project site consist of a few scattered rural homes along Wilkins Road. This issue will be addressed in the air quality impact study and EIR analysis.

d) **No Impact**. Land uses commonly considered to be potential sources of odorous emissions include wastewater treatment plants, sanitary landfills, food processing facilities, chemical manufacturing plants, rendering plants, paint/coating operations, and concentrated agricultural feeding operations and dairies. The construction and operation of a solar facility is not an odor producer and the project site is not located near an odor producer. No impact is identified for this issue area.

IV. Biological Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Impact Analysis

a) **Potentially Significant Impact.** The project site has the potential to support native habitats and/or sensitive species. Burrowing owls and burrows are commonly found along canals and drains. Although there are no IID canals located within the project site, access roads, canals, and other drainages are located in the project vicinity. Flat-tailed horned lizard may also have the potential to occur on the project site. Thus, a potentially significant impact is identified for this issue area. A biological resources technical study that will address the proposed project's potential impacts on biological resources will be prepared and included in the EIR analysis.

b) **Potentially Significant Impact.** Blue palo verde – ironwood woodland occurs in the northwest portion of the project site. This vegetation community is considered a sensitive natural community by the California Department of Fish and Wildlife (CDFW). The proposed project could potentially result in direct or indirect impacts to this vegetation community. Thus, a potentially significant impact is identified for this issue area. A biological resources technical study that will address the proposed project's potential impacts on biological resources will be prepared and included in the EIR analysis.

c) **Potentially Significant Impact.** The project site contains braided drainage channels that could potentially be considered jurisdictional waters by CDFW and United States Army Corps of Engineers (USACE). A jurisdictional waters/wetlands delineation report will be prepared and included in the EIR analysis.

d) **Potentially Significant Impact.** Refer to Response IV. a) above.

e) **Potentially Significant Impact.** Refer to Response IV. a) above.

f) **No Impact.** The project site is not located in a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impact is identified for this issue area.

V. Cultural Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☒	☐	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☒	☐	☐	☐

Impact Analysis

a) **Potentially Significant Impact.** The project parcel is currently vacant land. Road construction, off-road activity and the construction of the Coachella Canal have disturbed the project parcel to varying degrees. Thus, the presence of significant or undamaged cultural resources on the site is unlikely; however, cultural resources have been identified in proximity to the site. Although the proposed project is not expected to cause a substantial adverse change in the significance of a historical resource or archaeological resource, this issue will be analyzed further in the EIR. Therefore, a potentially significant impact is identified for this issue area. A cultural resources report that will address the proposed project's potential impacts on historic and prehistoric resources will be prepared and included in the EIR analysis.

b) **Potentially Significant Impact.** Refer to Response V. a) above.

c) **Potentially Significant Impact.** Although unlikely, there is a potential for unknown human remains to be unearthed during earthwork activities. This issue is potentially significant and will be discussed in the EIR.

VI. Energy

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Impact Analysis

a) **Less than Significant Impact.** The use of energy associated with the project include both construction and operational activities. Construction activities consume energy through the use of heavy construction equipment and truck and worker traffic. The proposed project will use energy-conserving construction equipment, including standard mitigation measures for construction combustion equipment recommended in the Imperial County Air Pollution Control District (ICAPCD) CEQA Air Quality Handbook. The use of better engine technology, in conjunction with the ICAPCD's standard mitigation measures will reduce the amount of energy used for the project.

Implementation and operation of the proposed project would promote the use of renewable energy and contribute incrementally to the reduction in demand for fossil fuel use for electricity-generating purposes. The project would generate renewable energy resources and is considered a beneficial effect.

Based on these considerations, the proposed project would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. This is considered a less than significant impact.

b) **No Impact.** The project will help California meet its Renewable Portfolio Standard of 50 percent of retail electricity sales from renewable sources by the end of 2030.The electricity generation process associated with the project would utilize solar technology to convert sunlight directly into electricity. Solar PV technology is consistent with the definition of an "eligible renewable energy resource" in Section 399.12 of the California Public Utilities Code and the definition of "in-state renewable electricity generation facility" in Section 25741 of the California Public Resource Code. The proposed project would not conflict with or obstruct a state or local plan for renewable energy of energy efficiency. No Impact is identified for this issue area.

VII. Geology and Soils

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

Impact Analysis

ai) **No Impact.** The project site is not located within a State of California, Alquist-Priolo Earthquake Fault Zone. Therefore, no impact is identified for this issue area.

aii) **Potentially Significant Impact.** The project site is located within a seismically-active zone in Southern California and considered likely to be subjected to moderate to strong ground motion from earthquakes in the region. The project site could be affected by the occurrence of seismic activity to some degree but no more than the surrounding properties. A potentially significant impact has been identified for this issue, and it will be evaluated in the EIR.

aiii) **Less than Significant Impact.** Liquefaction occurs when granular soil below the water table is subjected to vibratory motions, such as produced by earthquakes. With strong ground shaking, an increase in pore water pressure develops as the soil tends to reduce in volume. If the increase in pore water pressure is sufficient to reduce the vertical effective stress (suspending the soil particles in water), the soil strength decreases, and the soil behaves as a liquid (similar to quicksand). Liquefaction can produce excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations.

Four conditions are generally required for liquefaction to occur:
1) The soil must be saturated (relatively shallow groundwater).
2) The soil must be loosely packed (low to medium relative density).
3) The soil must be relatively cohesionless (not clayey).
4) Groundshaking of sufficient intensity must occur to function as a trigger mechanism.

The project site is not located within a current, mapped California Liquefaction Hazard Zone. In addition, groundwater in the site vicinity is expected to be approximately greater than 49 feet below the ground surface. Based on the near surface soil conditions and depth to groundwater, the potential for liquefaction is low. This is considered a less than significant impact.

aiv) **No Impact.** According to Figure 2: Landslide Activity in the Seismic and Public Safety Element of the General Plan, the project site is not located in an area that is prone to landslide hazards. Furthermore, the project site and surrounding area is relatively flat. Therefore, no impact is identified for this issue area.

b) **Less than Significant Impact.** Soil erosion can result during construction as grading and construction can loosen surface soils and make soils susceptible to wind and water movement across the surface. Impacts are not considered significant because erosion would be controlled on-site in accordance with Imperial County standards including preparation, review, and approval of a grading plan by the Imperial County Engineer. Implementation of Imperial County standards would reduce the potential impacts to below a level of significance.

c) **Less than Significant Impact.** As discussed in Response VII. aiv) above, the project site and surrounding area is relatively flat and is not located in an area that is prone to landslide hazards.

Due to the low potential for liquefaction, the depth of groundwater, and the fact that the project site is not located near free faces or bodies of water, the potential for lateral spreading is considered low.

The project site is not located within a mapped area of known land subsidence. Due to the depth of groundwater and the fact that the project site is not located in a mapped subsidence area, the potential for subsidence is considered low.

As discussed in Response VII. aiii) above, the potential for liquefaction is low.

Based on these considerations, the project site is not located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project. This is considered a less than significant impact.

d) **Less than Significant Impact.** The soils on the project site are mostly sandy soils whose expansion potential is considered low. This is considered a less than significant impact.

e) **No Impact.** The proposed project would not require an operations and maintenance building. The proposed solar facility would be remotely operated, controlled and monitored and with no requirement for daily on-site employees. Therefore, no impact is identified for this issue area.

f) **Potentially Significant Impact.** Many paleontological fossil sites are recorded in Imperial County and have been discovered during construction activities. Paleontological resources are typically impacted when earthwork activities, such as mass excavation cut into geological deposits (formations) with buried fossils. It is not known if any paleontological resources are located on the project site. The project's potential to impact paleontological resources will be addressed in the EIR.

VIII. Greenhouse Gas Emissions

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Impact Analysis

a) **Potentially Significant Impact.** The proposed project has the potential to generate greenhouse gas emissions during construction, in addition to construction worker trips to and from the project site. A potentially significant impact is identified and will be evaluated in the EIR. In the long-term, the project is expected to provide a benefit with respect to reduction of greenhouse gas emissions. An air quality/ greenhouse gas emissions study will be prepared for the proposed project, and this issue will be addressed in the EIR.

b) **Less than Significant Impact.** The proposed project would help the state meet this goal by generating up to 20 MW of power to California's current renewable portfolio. Therefore, in this regard, the project would help the state meet its goals under AB 32. Neither the County of Imperial or ICAPCD have any specific plans, policies, nor regulations adopted for reducing the emissions of GHGs; however, since the long-term operational GHG emissions are minimal and the construction emissions are short-term, the project would not conflict with any applicable plan, policy, or regulation adopted for reducing the emissions of GHGs. Implementation of the proposed project would result in a less than significant impact associated with the potential to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHG.

IX. Hazards and Hazardous Materials

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
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?	☐	☐	☒	☐

Impact Analysis

a) **Less than Significant Impact.** Construction of the project will involve the limited use of hazardous materials, such as fuels and greases to fuel and service construction equipment. No extremely hazardous substances are anticipated to be produced, used, stored, transported, or disposed of as a result of project construction. No operations and maintenance facilities, or habitable structures are proposed on-site. Operation of the project will be conducted remotely. Regular, routine maintenance of the project may result in the potential to handle hazardous materials. However, the hazardous materials handled on-site would be limited to small amounts of everyday use cleaners and common chemicals used for maintenance. The applicant will be required to comply with State laws and County Ordinance restrictions, which regulate and

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control hazardous materials handled on-site. Such hazardous wastes would be transported off-site for disposal according to applicable State and County restrictions and laws governing the disposal of hazardous waste during construction and operation of the project. Therefore, this is considered a less than significant impact.

b) **Less than Significant Impact.** Refer to response X. a) above.

c) **No Impact.** The project site is not located within 0.25 mile of an existing or proposed school. No impact is identified for this issue area.

d) **No Impact.** Based on a review of the Cortese List conducted in October 2019, the project site is not listed as a hazardous materials site. No impact is identified for this issue area.

e) **No Impact.** The project site is not located within two miles of a public airport or public use airport. Therefore, the proposed project would not result in airport hazards for people residing or working in the project area.

f) **Less than Significant Impact.** The proposed project is not expected to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The project applicant will be required, through the conditions of approval, to prepare a street improvement plan for the project that will include emergency access points and safe vehicular travel. In addition, local building codes would be followed to minimize flood, seismic, and fire hazard. Therefore, the proposed project would result in a less than significant impact associated with the possible impediment to emergency plans.

g) **Less than Significant Impact.** The project site is located in the unincorporated area of Imperial County According to the Seismic and Public Safety Element of the General Plan, the potential for a major fire in the unincorporated areas of the County is generally low. This is considered a less than significant impact.

X. Hydrology and Water Quality

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

Impact Analysis

a) **Potentially Significant Impact.** The proposed project has the potential to create urban non-point source discharge (e.g., synthetic/organic chemicals). Potentially significant water quality impacts have been identified and will be addressed in the EIR.

b) **Less than Significant Impact.** During construction, potable water would be brought to the site for drinking and domestic needs, while construction water would be brought to the site for soil conditioning and dust

suppression. During operations, potable water would be trucked onto the project site. Because the solar panels will be pole-mounted above ground, they are not considered “hardscape”, such as roads, building foundations, or parking areas, as they do not require a substantial amount of impervious material. The panels and their mounting foundation would not impede groundwater recharge. Impacts would be less than significant.

ci) **Less than Significant Impact.** The proposed project would not substantially alter the existing drainage pattern of the site. It is anticipated that the proposed drainage patterns would be similar to the existing site conditions. The project applicant would be required to implement on-site erosion control measures in accordance with County standards, which require the preparation, review, and approval of a grading plan by the County Engineer. The proposed project would not result in substantial erosion or siltation on- or off-site. This is considered a less than significant impact.

cii) **Less than Significant Impact.** The proposed project is not anticipated to generate a significant increase in the amount of runoff water from water use involving solar panel washing. Water will continue to percolate through the ground, as a majority of the surfaces on the project site will remain pervious. The proposed project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite. This is considered a less than significant impact.

ciii) **Less than Significant Impact.** The proposed project is not anticipated to generate a significant increase in the amount of runoff water from water use involving solar panel washing. Water will continue to percolate through the ground, as a majority of the surfaces on the project site will remain pervious. The proposed project would not 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. This is considered a less than significant impact.

civ) **No Impact.** According to the Federal Emergency Management Agency Flood Insurance Rate Map (Panel 06025C0425C), the project site is located in Zone X, which is an area determined to be outside of the 0.2 percent annual chance of a flood. The project does not propose the placement of structures within a 100-year flood hazard area. Therefore, the proposed project would not impede or redirect flood flows and no impact is identified for this issue area.

d) **No Impact.** The project site is not located near any large bodies of water. The Salton Sea is located approximately 10 miles west of the project site. Furthermore, the project site is over 100 miles inland from the Pacific Ocean. In addition, the project site is relatively flat. Therefore, there is no potential for the project site to be inundated by seiches or tsunamis.

e) **Potentially Significant Impact.** Refer to Response X. a) above.

XI. Land Use and Planning

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐

Impact Analysis

a) **No Impact.** The project site is located in a sparsely populated portion of Imperial County. There are no established residential communities located within or in the vicinity of the project site. Therefore, implementation of the proposed project would not divide an established community and no impact would occur.

b) **Potentially Significant Impact.** Implementation of the project would require the approval of a CUP by the County to allow for the construction and operation of the proposed solar energy facility project. The project site is located on one privately-owned legal parcel zoned Open Space/Preservation (S-2-G). Pursuant to Title 9, Division 5, Chapter 19, the following uses are permitted in the S-2 zone subject to approval of a CUP from Imperial County: Major facilities relating to the generation and transmission of electrical energy provided such facilities are not under State or Federal law, to approved exclusively by an agency, or agencies of the State or Federal government, and provided such facilities shall be approved subsequent to coordination review of the Imperial Irrigation District for electrical matters. Such uses shall include but be limited to the following:

- Electrical generation plants
- Facilities for the transmission of electrical energy (100-200 kV)
- Electrical substations in an electrical transmission system (500 kv/230 kv/161 kV)

The County Land Use Ordinance, Division 17, includes the Renewable Energy Overlay Zone, which authorizes the development and operation of renewable energy projects, with an approved CUP. CUP applications proposed for specific renewable energy projects not located in the RE Overlay Zone would not be allowed without an amendment to the RE Overlay Zone. As shown on Figure 1, the project site is located outside of the Renewable Energy Overlay Zone. Therefore, the project requires a General Plan Amendment and Zone Change to include/classify the project site into the RE Overlay Zone. The proposed General Plan Amendment and Zone Change may result in a conflict with an applicable land plan, policy, or regulation. A potentially significant impact has been identified for this issue, and this issue will be addressed in the EIR.

A variance is required to exceed the height limit for transmission towers within the S-2 zone. The existing S-2 zone allows a maximum height limit of 40 feet; whereas implementation of the project may involve the construction of transmission towers of up to 70 feet in height. This issue will be addressed in the EIR.

XII. Mineral Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Impact Analysis

a) **No Impact.** The project site is not used for mineral resource production. According to Figure 8: Imperial County Existing Mineral Resources of the Conservation and Open Space Element of the General Plan, no known mineral resources occur within the project site nor does the project site contain mapped mineral resources. Therefore, the proposed project would not result in the loss of availability of any known mineral resources that would be of value to the region and the residents of California nor would the proposed project result in the loss of availability of a locally important mineral resource.

b) **No Impact.** Refer to Response XIII. a) above.

XIII. Noise

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Impact Analysis

a) **Less than Significant Impact.** The Imperial County Title 9 Land Use Ordinance, Division 7, Chapter 2, Section 90702.00 - Sound level limits, establishes one-hour average sound level limits for the County's land use zones. Agricultural/industrial operations are required to comply with the noise levels prescribed under the general industrial zones. Therefore, the project is required to maintain noise levels below 75 decibels (dB) (averaged over one hour) during any time of day. The project would be expected to comply with the Noise Element of the General Plan which states that construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB, when averaged over an eight hour period, and measured at the nearest sensitive receptor. Construction equipment operation is also limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m.

b) **Less than Significant Impact.** Groundborne vibration and groundborne noise could originate from earth movement during the construction phase of the proposed project. However, significant vibration is typically associated with activities such as blasting or the use of pile drivers, neither of which would be required during project construction. The project would be expected to comply with all applicable requirements for long-term operation, as well as with measures to reduce excessive groundborne vibration and noise to ensure that the project would not expose persons or structures to excessive groundborne vibration. No further analysis is warranted.

c) **No Impact.** The project site is not located within two miles of a public airport or private airstrip. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels. No impact is identified for this issue area.

XIV. Population and Housing

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Impact Analysis

a) **No Impact.** Development of housing is not proposed as part of the project. No full-time employees are required to operate the project. The project facility will be monitored remotely. It is anticipated that maintenance of the facility will require minimal site presence to perform periodic visual inspections and minor repairs. On intermittent occasions, the presence of additional workers may be required for repairs or replacement of equipment and panel cleaning; however, due to the nature of the facility, such actions will likely occur infrequently. Therefore, the proposed project would not result in a substantial growth in the area, as the number of employees required to operate and maintain the facility is minimal. No impact is identified for population and housing.

b) **No Impact.** No housing exists within the project site and no people reside within the project site. Therefore, the proposed project would not displace substantial numbers of people or housing, necessitating the construction of replacement housing elsewhere. No impact is identified for this issue area.

XV. Public Services

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire Protection?	☐	☐	☒	☐
ii. Police Protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

Impact Analysis

ai) **Less than Significant Impact.** Fire protection and emergency medical services in the area are provided by the Imperial County Fire Department. The project site is located in the unincorporated area of Imperial County According to the Seismic and Public Safety Element of the General Plan, the potential for a major fire in the unincorporated areas of the County is generally low. Both the access and service roads (along the perimeter of the project facility) would have turnaround areas to allow clearance for fire trucks per fire department standards (70 feet by 70 feet, and 20-foot-wide access road). Based on these considerations, the project would not result in a need for fire facility expansion and a less than significant impact is identified for this issue area.

aii) **Less than Significant Impact.** Police protection services in the project area is provided by the Imperial County Sheriff's Department. Although the potential is low, the proposed project may attract vandals or other security risks. The increase in construction related traffic could increase demand on law enforcement services. However, the project site would be fenced with 6-foot high chain link security fence topped with barbed wire and points of ingress/egress would be accessed via locked gates. In addition, periodic on-site personnel visitations for security would occur during operations and maintenance of the proposed project, thereby minimizing the need for police surveillance. This is considered a less than significant impact.

aiii) **No Impact.** The proposed project does not include the development of residential land uses that would result in an increase in population or student generation. Construction of the proposed project would not result in an increase in student population within the Imperial County's School District since it is anticipated that construction workers would commute in during construction operations. The proposed project would have no impact on Imperial County schools. No further analysis is warranted.

aiv) **No Impact.** No full-time employees are required to operate the project. The project facility will be monitored remotely. It is anticipated that maintenance of the facility will require minimal site presence to perform periodic visual inspections and minor repairs. Therefore, substantial permanent increases in population that would adversely affect local parks is not expected. The project is not expected to have an impact on parks. Therefore, no further analysis of these issue areas is warranted.

av) **No Impact.** No full-time employees are required to operate the project. The project facility will be monitored remotely. It is anticipated that maintenance of the facility will require minimal site presence to perform periodic visual inspections and minor repairs. Therefore, substantial permanent increases in population that would adversely affect libraries and other public facilities (such as post offices) are not expected. The project

is not expected to have an impact on other public facilities such as post offices, and libraries. Therefore, no further analysis of these issue areas is warranted.

XVI. Recreation

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Impact Analysis

a) **No Impact.** The project site is not used for formal recreational purposes. Also, the proposed project would not generate new employment on a long-term basis. As such, the project would not significantly increase the use or accelerate the deterioration of regional parks or other recreational facilities. The temporary increase of population during construction that might be caused by an influx of workers would be minimal and not cause a detectable increase in the use of parks. Additionally, the project does not include or require the expansion of recreational facilities. No impact will occur and no further analysis is warranted.

b) **No Impact.** Refer to Response XVII. a) above.

XVII. Transportation

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☒	☐	☐	☐
b) Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

Impact Analysis

a) **Potentially Significant Impact.** Construction of the project would result in a small increase of traffic consisting of construction trucks and construction employee vehicular trips to the area, which may result in a potentially significant impact. This issue will be addressed in the EIR.

b) **No Impact.** This threshold is not applicable until 2020. No impact would occur and no further analysis is warranted.

c) **Less than Significant Impact.** To accommodate emergency access, PV panels would be spaced to maintain proper clearance. A 20-foot wide access road would be constructed along the perimeter fence and solar panels to facilitate vehicle access and maneuverability for emergency unit vehicles. The internal access road would be graded and compacted (native soils) as required for construction, operations, maintenance, and emergency vehicle access. These access roads would not increase hazards because of design features or incompatible uses and a less than significant impact is identified. Furthermore, a haul truck route study will be required which will determine the appropriate construction route.

d) **Less than Significant Impact.** To accommodate emergency access, PV panels would be spaced to maintain proper clearance. A 20-foot wide access road would be constructed along the perimeter fence and solar panels to facilitate vehicle access and maneuverability for emergency unit vehicles. The internal access road would be graded and compacted (native soils) as required for construction, operations, maintenance, and emergency vehicle access. The access and service roads would also have turnaround areas at any dead-end to allow clearance for fire trucks per fire department standards (70 feet by 70 feet, and 20-foot-wide access road). Based on this context, impacts are considered less than significant.

XVIII. Tribal Cultural Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	☒	☐	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☒	☐	☐	☐

Impact Analysis

a-b) **Potentially Significant Impact.** Assembly Bill 52 was passed in 2014 and took effect July 1, 2015. It established a new category of environmental resources that must be considered under CEQA called tribal cultural resources (Public Resources Code 21074) and established a process for consulting with Native American tribes and groups regarding those resources. Assembly Bill 52 requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.

Imperial County will consult with appropriate tribes with the potential for interest in the region. This issue will be further analyzed in the EIR.

XIX. Utilities and Service Systems

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☒	☐	☐	☐
c) Result in a determination by the wastewater treatment provider, 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?	☐	☐	☒	☐

Impact Analysis

a) **Less than Significant Impact.** The proposed project would generate a minimal volume of wastewater during construction. During construction activities, wastewater would be contained within portable toilet facilities and disposed of at an approved site. No habitable structures are proposed on the project site (such as O&M buildings); therefore, there would be no wastewater generation from the proposed project. The proposed project would not require or result in the relocation or construction of new or expanded wastewater facilities.

The proposed project does not require expanded or new storm drainage facilities because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events. Water from solar panel washing would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious. The proposed project would not require or result in the relocation or construction of new or expanded storm water facilities.

The proposed project is not anticipated to result in a significant increase in water demand/use; however, water will be needed for solar panel washing and dust suppression. Water would be trucked to the project site from a local water source (East Highline Canal). Therefore, the proposed project would not require or result in the relocation or construction of new or expanded water facilities.

The proposed project would not require or result in the relocation or construction of new or expanded electric power, natural gas, or telecommunications facilities.

Based on these considerations, a less than significant impact is identified for this issue area.

b) **Potentially Significant Impact.** Approximately 20,000 to 30,000 gallons of water per day would initially be required for grading, dropping to much less for the remainder of the project construction. Construction water needs would be limited to earthwork, soil conditioning, dust suppression, and compaction efforts. Estimated annual water consumption for operation and maintenance of the proposed project, including periodic PV module washing, would be approximately 0.81-acre feet annually (af/y), which would be trucked to the project site. Although the proposed project is not anticipated to result in a significant increase in water demand/use, this issue will be addressed in the EIR.

c) **Less than Significant Impact.** Refer to Response XIX. a) above.

d) **Less than Significant Impact.** Solid waste generation would be minor for the construction and operation of the project. Solid waste will be disposed of using a locally-licensed waste hauling service, most likely Allied Waste. Trash would likely be hauled to the Niland Solid Waste Site (13-AA-0009) located in Niland. The Niland Solid Waste Site has approximately 318,669 cubic yards of remaining capacity and is estimated to remain in operation through 2056 (CalRecycle n.d.). Therefore, there is ample landfill capacity in the County to receive the minor amount of solid waste generated by construction and operation of the project.

Additionally, because the proposed project would generate solid waste during construction and operation, the project will be required to comply with state and local requirements for waste reduction and recycling; including the 1989 California Integrated Waste Management Act and the 1991 California Solid Waste and Recycling Access Act of 1991. Also, conditions of the CUP will contain provisions for recycling and diversion of Imperial County construction waste policies. A less than significant impact is identified for this issue area.

e) **Less than Significant Impact.** Refer to Response XIX. d) above.

XX. Wildfire

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

Impact Analysis

a) **No Impact.** According to the Draft Fire Hazard Severity Zone Map for Imperial County prepared by the California Department of Forestry and Fire Protection, the project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). Therefore, the proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan. No impact is identified for this issue area.

b) **No Impact.** The project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). Therefore, the proposed project would not exacerbate wildfire risks. No impact is identified for this issue area.

c) **No Impact.** The project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). The proposed project would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that would may result in temporary or ongoing impacts to the environment. No impact is identified for this issue area.

d) **No Impact.** The project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). The proposed project would not 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. No impact is identified for this issue area.

XXI. Mandatory Findings of Significance

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Impact Analysis

a) **Potentially Significant Impact.** The proposed project has the potential to result in significant environmental effects on biological resources and cultural resources, which could directly or indirectly cause adverse effects on the environment. These issues will be further evaluated in the EIR.

b) **Potentially Significant Impact.** Implementation of the proposed project has the potential to result in impacts related to: aesthetics, air quality, sensitive biological resources, cultural resources, paleontological resources, geology/soils, greenhouse gas emissions, hydrology and water quality, transportation/circulation impacts, and water supply. The proposed project has the potential to result in cumulative impacts with regards to the identified issue areas. Cumulative impacts will be discussed and further analyzed in the EIR.

c) **Potentially Significant Impact.** Implementation of the proposed project has the potential to result in impacts related to: air quality and geology/soils. These potential environmental effects could cause substantial adverse effects on human beings. These issues will be further evaluated in the EIR.

Comment Letters Received on Notice of Preparation

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
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November 14, 2019

Patricia Valenzuela
Imperial County
801 Main Street
El Centro, CA 92243

RE: SCH# 2019110140, Wister Solar Energy Facility Project, Imperial County

Dear Ms. Valenzuela:

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

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

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

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

AB 52

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

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
   a. A brief description of the project.
   b. The lead agency contact information.
   c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
   d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
   a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
   a. Alternatives to the project.
   b. Recommended mitigation measures.
   c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   a. Type of environmental review necessary.
   b. Significance of the tribal cultural resources.
   c. Significance of the project's impacts on tribal cultural resources.
   d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

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

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
   b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
    a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
    b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
        i. Planning and construction to avoid the resources and protect the cultural and natural context.
        ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
        i. Protecting the cultural character and integrity of the resource.
        ii. Protecting the traditional use of the resource.
        iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

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

SB 18

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

Some of SB 18's provisions include:

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

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

NAHC Recommendations for Cultural Resources Assessments

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

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

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

Sincerely,

Andrew Green

Andrew Green
Staff Services Analyst

cc: State Clearinghouse

IID

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December 10, 2019

Ms. Patricia Valenzuela
Planner IV
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: NOP of a Draft EIR for the Orni 21, LLC Wister Solar Energy Facility Project

Dear Ms. Valenzuela:

On November 12, 2019, the Imperial Irrigation District received from the Imperial County Planning & Development Services Dept. a request for agency comments on the Notice of Preparation of a Draft Environmental Impact Report for the Wister Solar Energy Facility Project. The applicant, Orni 21, LLC, is proposing to develop a 20MW photovoltaic energy generation facility on a 100 acres of a 640-acre parcel generally located about 3 miles north of the townsite of Niland, California.

The Imperial Irrigation District has reviewed the information and has the following comments:

1. The project plans to interconnect to the IID's 92kV "K" transmission line via a generation tie-in line along the east portion of parcel APN 003-240-001 on approximately 100 acres of the 640 acres parcel. To serve the project's temporary construction and permanent power requirements for the project's substation, there may be a need to under build the 92kV gen-tie with 12kV rated conductor.

2. For distribution-rated electrical service for the project, the applicant should be advised to contact Ignacio Romo, IID Customer Project Development Planner, at (760) 482-3426 or e-mail Mr. Romo at igromo@iid.com to initiate the customer service application process. In addition to submitting a formal application (available for download at the district website http://www.iid.com/home/showdocument?id=12923), the applicant will be required to submit a complete set of approved plans (including CAD files), project schedule, estimated in-service date, one-line diagram of facility, electrical loads, panel size, voltage, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of temporary and permanent electrical service to the project. The applicant shall be responsible for all costs and mitigation measures related to providing electrical service to the project.

3. Please note electrical capacity in the area is limited and a circuit study will be required to determine the project's impact to the distribution system. If the study determines any distribution system upgrades are needed to serve the project, the applicant shall be financially responsible for those upgrades.

4. Developer should be advised that for specific technical concerns regarding the interconnection to IID's 92kV "K" transmission line to contact Carlos Alfaro, IID Transmission Engineering Supervisor at (760) 482-3483 or e-mail Mr. Alfaro at calfaro@iid.com.

5. IID water facilities that may be impacted include the East Highland Canal. The project site is located adjacent to and east of the East Highline Canal.

6. The applicant may not use IID's canal or drain banks to access the project site. Any abandonment of easements or facilities will be approved by IID based on systems (irrigation, drainage, power, etc.) needs.

7. The proposed project is located outside of IID's water service area and will be unable to receive IID water service. According to the terms of IID's 1932 federal water contract, only lands that are within the All-American Canal Service Area Boundary that have been included within the legal boundary of IID are eligible to receive water. Lands outside of the AAC Service Area Boundary or outside of the district boundary, may receive water from IID only if IID agrees to sell conserved water pursuant to a water conservation and transfer agreement. While these supplies are subject to even more constraints and approvals under the terms of the Quantification Settlement Agreement and various other related contracts, IID's Board of Directors is on record as indicating they are not in favor of any additional or new water transfers, which in and of themselves are complicated and tied to other existing contractual obligations. IID's water service area maps are available at https://www.iid.com/water/about-iid-water/water-service-maps. While all specific project inquiries should be directed to IID, these referenced maps may serve as a quick guide

8. Any construction or operation on IID property or within its existing and proposed right of way or easements including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities; will require an encroachment permit, or encroachment agreement (depending on the circumstances). A copy of the IID encroachment permit application and instructions are available for download at http://www.iid.com/departments/real-estate. The IID Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements.

9. An IID encroachment permit will be required to utilize existing surface-water drainpipe connections to drains and receive drainage service from IID. Surface-water drainpipe connections are to be modified in accordance with IID standards. A construction storm-water permit and an industrial storm water permit from the California Regional Water Quality Control Board are required for the construction and operation of the proposed facility. Copies of these permits and the project's Storm Water Pollution Prevention Plan are to be submitted to IID.

10. In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of

IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities.

11. Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully analyzed. **Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent**.

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Compliance Administrator II

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept.
Marilyn Del Bosque Gilbert – Manager, Energy Dept.
Jamie Asbury – Deputy Manager, Energy Dept., Operations
Enrique De Leon – Asst. Mgr., Energy Dept., Distr., Planning, Eng. & Customer Service
Vance Taylor – Asst. General Counsel
Robert Laurie – Asst. General Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes. – Supervisor, Real Estate
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.

COUNTY OF IMPERIAL

DEPARTMENT OF PUBLIC WORKS

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December 17, 2019

Mr. Jim Minnick, Director
Planning & Development Services Department
801 Main Street
El Centro, CA 92243

Attention: Patricia Valenzuela, Planner IV

SUBJECT: **CUP 18-0040 for Wister Solar Energy Facility Project**;
Located approximately three miles north of Niland, CA.
APN 003-240-001

Dear Mr. Minnick:

This letter is in response to your submittal received by this department on November 6, 2019 for the above mentioned project. The applicant is proposing the construction and operation of a 20 Megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres being comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables. It also includes approximately two miles of fiber optic line from the proposed on-site substation to the existing Niland Substation to connect the proposed telecommunications system.

Department staff has reviewed the package information and the following comments shall be Conditions of Approval:

1. Cuff Road is classified as Local County (Residential) - two (2) lanes, requiring sixty feet (60) of right of way, being thirty (30) feet from existing centerline. It is required that sufficient right of way be provided to meet this road classification. **As directed by Imperial County Board of Supervisors per Minute Order #6 dated 11/22/1994 per the Imperial County Circulation Element Plan of the General Plan).**

2. Wilkins Road is classified as Minor Collector – Local Collector, two (2) lanes, requiring seventy feet (70) of right of way, being thirty five (35) feet from existing centerline. It is required that sufficient right of way be provided to meet this road classification. As directed by Imperial County Board of Supervisors per Minute Order #6 dated 11/22/1994 per the Imperial County Circulation Element Plan of the General Plan).

3. According to the County of Imperial Codified Ordinances, any site plan submitted with an application for permitting shall show the dimensions, which includes bearings, of all property lines. All distances from the property line(s) to the structures shall also be shown on the site plan. The applicant shall revise the site plan and resubmit at the earliest convenience.

4. The access road on the east side of the property connecting to Cuff Road (Gas Line Road) as illustrated on Figure 3-3 of the Project Description Document has the potential to encroach into Zone A of the FEMA Flood Insurance Map Panel 06025C0450C.

PC ORIGINAL PKG

The findings of the Initial Study under Section X – Hydrology and Water Quality, Subsection c) iv, shall state that either no access roads will be constructed within the flood zone or that mitigation measures will be provided during the EIR.

5. Section XVII – Transportation, Subsection d), of the Initial Study refers to site emergency access and is evaluated as having Less than Significant Impacts. This section does not make a mention of access roads from the project site to County roads.

   The findings on Section XVII – Transportation, Subsection d), of the Initial Study shall include impacts the access road east of the project site to Cuff Road (Gas Line Road) and the two access roads west of the project site to Wilkins Road. This finding shall be revised to be Potentially Significant Impact.

Prior to development, the Developer shall meet the following requirements:

A. Any access roads to the project site shall abut to County roads. Access roads through private properties shall require easements from property owners.

B. Any activity and/or work within Imperial County right-of-way shall be completed under a permit issued by this Department (encroachment permit) as per Chapter 12.12 - Excavations on or Near a Public Road of the Imperial County Ordinance.

   a. Any activity and/or work may include, but not be limited to, the installation of temporary stabilized construction entrances, primary access driveways, secondary emergency access driveways, site fence installation, underground/overhead electrical crossings, road improvements, temporary traffic control, etc.

C. Corner record is required to be filed with the Imperial County Surveyor for monuments prior to construction:

   8771. (b) When monuments exist that control the location of subdivisions, tracts, boundaries, roads, streets, or highways, or provide horizontal or vertical survey control, the monuments shall be located and referenced by or under the direction of a licensed land surveyor or licensed civil engineer legally authorized to practice land surveying, prior to the time when any streets, highways, other rights-of-way, or easements are improved, constructed, reconstructed, maintained, resurfaced, or relocated, and a corner record or record of survey of the references shall be filed with the county surveyor.

D. A second corner record is required to be filed with the Imperial County Surveyor for monuments:

   8771. (c) A permanent monument shall be reset in the surface of the new construction or a witness monument or monuments set to perpetuate the location if any monument could be destroyed, damaged, covered, disturbed, or otherwise obliterated, and a corner record or record of survey shall be filed with the county surveyor prior to the recording of a certificate of completion for the project. Sufficient controlling monuments shall be retained or replaced in their original positions to enable property, right-of-way and easement lines, property corners, and subdivision and tract boundaries to be reestablished without devious surveys necessarily originating on monuments differing from those that currently control the area.

E. The Developer will be required to repair any damages caused to County roads by construction traffic during construction and maintain them in safe conditions.

F. All off-site improvements within Imperial County right-of-way shall be financially secured by either a road improvement bond or letter of credit prior to issuance of a grading permit, building permit, and encroachment permit.

G. Prior to the issuance of grading and building permits, the Developer shall complete the installation of temporary stabilized construction entrances and secondary emergency access driveways.

H. Prior to issuance of final certificate of occupancy, the Developer shall be responsible for repairing any damage caused to County roads and bridges during construction as determined by the Imperial County Road Commissioner.

I. The Developer shall furnish a Drainage and Grading Plan/Study to provide for property grading and drainage control, which shall also include prevention of sedimentation of damage to off-site properties. The Study/Plan shall be submitted to the Department of Public Works for review and approval. The Developer shall implement the approved plan. Employment of the appropriate Best Management Practices (BMP's) shall be included. (Per Imperial County Code of Ordinances, Chapter 12.10.020 B).

J. Any permanent structures shall be located outside of the ultimate County Right-of-Way.

K. Off-site improvements shall be constructed in compliance with the material specifications, horizontal/vertical alignments and notes of engineered approved project plans and shall conform to County of Imperial Department of Public Works Engineering Design Guidelines Manual.

L. On-site roads shall be constructed of compacted Class II Aggregate Base.

M. Primary and secondary emergency access driveways from paved roads shall be constructed of Asphalt Concrete Pavement. Primary and secondary emergency access driveways from unpaved roads shall be constructed of Class II Aggregate Base.

N. The Developer shall prepare and submit a haul route study for the proposed construction haul route to evaluate any impacts to County roads. Said study shall be submitted to this Department for review and approval. The haul route study shall include pictures and/or other documents to verify the existing conditions of the impacted County roads before construction begins. The haul route study shall also include recommended mitigation improvements to impacted County roads along with any fair share costs for such improvements.

O. The Developer shall enter into a Roadway Maintenance Agreement with the County of Imperial prior to issuance of a Certificate of Occupancy. The Developer shall provide financial security to maintain the roads on the approved haul route study during construction.

INFORMATIVE:

The following items are for informational purposes only. The Developer is responsible to determine if the enclosed items affect the subject project.

- All solid and hazardous waste shall be disposed of in approved solid waste disposal sites in accordance with existing County, State and Federal regulations (Per Imperial County Code of Ordinances, Chapter 8.72).

- All on-site traffic areas shall be hard surfaced to provide all weather access for emergency vehicles.

- The project may require a National Pollutant Discharge Elimination System (NPDES) permit and Notice of Intent (NOI) from the Regional Water Quality Control Board (RWQCB) prior to County approval of onsite grading plan (40 CFR 122.28).

- A Transportation Permit may be required from road agency(s) having jurisdiction over the haul route(s) for any hauls of heavy equipment and/or large vehicles which impose greater than legal loads on riding surfaces, including bridges. (Per Imperial County Code of Ordinances, Chapter 10.12 – Overweight Vehicles and Loads).

- As this project proceeds through the planning and the approval process, additional comments and/or requirements may apply as more information is received

Should you have any questions, please do not hesitate to contact this office. Thank you for the opportunity to review and comment on this project.

Respectfully,

By:

John A. Gay, PE
Director of Public Works

CY/dm

AUGUSTINE BAND OF CAHUILLA INDIANS

PO Box 846 84-481 Avenue 54 Coachella CA 92236
Telephone: (760) 398-4722
Fax (760) 369-7161
Tribal Chairperson: Amanda Vance
Tribal Vice-Chairperson: William Vance
Tribal Secretary: Victoria Martin

February 26, 2019

Joe Hernandez
Imperial County Planning & Development Services
801 Main Street
El Centro, CA 92243

Re: **Wister Solar Farm – Ormat Technologies, Inc.**

Dear Mr. Hernandez-

Thank you for the opportunity to offer input concerning the development of the above-identified project. We appreciate your sensitivity to the cultural resources that may be impacted by your project, and the importance of these cultural resources to the Native American peoples that have occupied the land surrounding the area of your project for thousands of years. Unfortunately, increased development and lack of sensitivity to cultural resources has resulted in many significant cultural resources being destroyed or substantially altered and impacted. Your invitation to consult on this project is greatly appreciated.

At this time we are unaware of specific cultural resources that may be affected by the proposed project. We encourage you to contact other Native American Tribes and individuals within the immediate vicinity of the project site that may have specific information concerning cultural resources that may be located in the area. We also encourage you to contract with a monitor who is qualified in Native American cultural resources identification and who is able to be present on-site full-time during the pre-construction and construction phase of the project. Please notify us immediately should you discover any cultural resources during the development of this project.

Very truly yours,

Victoria Martin

Tribal Secretary

Wister Solar Energy Facility

Visual Resources Technical Report

August 6, 2019

Prepared for:

ORNI 21, LLC
6140 Plumas Street
Reno, NV 89519

Prepared by:

Stantec Consulting Services, Inc.
100 California Street, Suite 1000
San Francisco, CA 94111

Sign-off Sheet

This document entitled Wister Solar Project Visual Resources Technical Report was prepared by Stantec Consulting Services Inc. (“Stantec”) for the account of ORNI 21, LLC (the “Client”). The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes.

Prepared by _____

Josh Hohn, AICP - Visual Resources Practice Lead

Technical Review by _____

Kaela Johnson – Visual Analyst

Independent Review by _____

Kevin Kohan – Senior Environmental Planner

Table of Contents

LIST OF FIGURES

1.0 INTRODUCTION

ORNI 21, LLC (ORNI) has retained the services of Stantec Consulting Services Inc. (Stantec) to prepare this technical report assessing the current surrounding conditions and to describe potential changes to the landscape resulting from the Wister Solar Energy Facility (Project) development. The Project would be located on a 640-acre parcel north of Niland in Imperial County, CA (see Figure 1). It would occupy 100 acres of that parcel (see Figure 2).

The 20-megawatt nameplate capacity Project would consist of 3.2 foot by 6.5-foot photovoltaic (PV) modules (or panels) on single-axis horizontal trackers in blocks that each hold 2,520 PV panels, with 90 modules in most rows. The panels would be oriented from east to west for maximum exposure and the foundation would be designed based on existing soil conditions. The PV modules are made of a poly-crystalline silicon semiconductor material encapsulated in glass. A 20-foot wide road with an all-weather surface would surround the panels, and the entire site would be surrounded by a 6-foot tall chain link fence topped with three strands of barbed wire.

The proposed Wister Substation would be a new 92/12 kV unstaffed, automated, low-profile substation. The dimensions of the fenced substation would be approximately 300 feet by 175 feet. The enclosed substation footprint would encompass approximately 1.2 acres of the Project parcel and be located immediately southwest of the solar field.

A proposed above-ground gen-tie line would connect the Wister substation to the Point of Interconnection (POI) at the existing IID 92kV “K” line, approximately 2,500 feet south of the southwest corner of the Project site, along Wilkins Road (see Figure 2). Steel poles, with maximum heights of 70 feet and 300-foot spans, would support the 92kV conductor and fiberoptic cable.

2.0 EXISTING CONDITIONS

The Project site is located within Assessor's Parcel No. 003-240-001, which is currently zoned S-2-G ("Open Space / Preservation" with a geothermal overlay) and designated "Recreational Open Space" by Imperial County's Zoning Map. The Project site is currently undeveloped, though multiple electrical transmission lines extend generally north-south adjacent to and near the Project site.

The Project site is located north-northeast of the intersection of Wilkins and Wiest Roads, about 3 miles north of the unincorporated town of Niland. Niland is the northernmost community within the agricultural portion of the Imperial Valley, which extends from the southeastern portion of the Salton Sea to the United States and Mexico border. The 45-mile-long and 20-mile-wide Salton Sea defines the landscape to the west of the Project site. Elevations within the Project site range from nearly 50 feet below sea level to 30 feet above mean sea level (amsl). With elevations extending to 277 feet below sea level, the Salton Sea sits comparatively lower in the landscape than the Project site, as does much of the agricultural land to the immediate west and south. To the north and east of the Project site are the Chocolate Mountains, which extend to heights of more than 2,000 feet amsl.

Because of this gradual downward slope from east to west, areas to the north and east of the Project site would be more likely to have views of the Project where not impeded by natural or built features. Viewers in this area are associated with land uses. Thus, potential viewers include workers traveling north/south on Gas Line Road, which extends north from Niland Avenue – near Imperial Irrigation District (IID) facilities and an existing solar power facility – to a facility northeast of the Project site. Further away, to the southeast and just slightly higher in elevation than the Project site, are Slab City and Salvation Mountain. Slab City is a former military facility that now serves as the site of an informal community for artists, travelers, and winter-time RV campers. Salvation Mountain is an outdoor art project at the western entrance to Slab City. Both attract tourists and sight-seers. However, topography, structures, and distance limit and obscure visibility of the Project site in direct views from publicly accessible portions of these areas.

Land uses to the west and south include agricultural production and dispersed rural residences, the closest of which are aligned along Wilkins Road and Weist Road. The segments of these roads closest to the southwest corner of the Project site are generally lower than the Project site by approximately 20 feet, which reduces visibility of the site. Areas further away – including the aforementioned IID facilities approximately 2 miles to the south, Niland and the State Route 111 (SR 111) corridor approximately 2 miles to the southwest, and the Wister Waterfowl Management Area approximately 3 miles to the west beyond the SR 111 corridor – are also lower in elevation and thus do not afford direct views toward the Project site.

Views in this area are expansive and are generally characterized by sparse development framed by topographical features. Low-profile, weedy plants, such as salt cedar and russian thistle, typical of this portion of the Colorado Desert, are widespread on undeveloped and unfarmed lands, and ruderal vegetation is along waterways associated with IID canals (Barrett's Biological Surveys, 2018). Individual residences, transmission lines, transportation corridors (including roads and railroads), and agricultural equipment are discernable in the foreground (within 0.25 mile) and middleground (0.25 to 3-5 miles away) views throughout the area. Geothermal plants in the vicinity of the Salton Sea are visible in most views to the west. They are identifiable by their vapor plumes. These views to the west from the Project site are backdropped by the Santa Rosa Mountains and Vallecito Mountains. Views to the east are backdropped by the Chocolate Mountains.

3.0 METHODS

A comparison of the Project site's existing conditions and the change to the landscape with implementation of the Project is based on the production of visual simulations. As a part of this process, Stantec's Visual Resources Team reviewed aerial imagery to identify where the Project would potentially be visible from visually sensitive areas and selected preliminary viewpoints for site photography. Field surveys were conducted by Stantec on February 22, 2019 to photo-document existing visual conditions and views toward the Project site. A representative subset of photographed viewpoints was selected as Key Observation Points (KOPs), which collectively serve as the basis for this assessment. This selection was done in coordination with ORNI. Assessments of existing visual conditions were made based on professional judgment that took into consideration sensitive receptors and sensitive viewing areas in the Project area. The locations of the two KOPs in relation to the Project site are presented on Figure 2.

During the field survey, the view from each KOP was photographed using a 35-millimeter, 53-megapixel, full-frame, single lens reflex camera equipped with a 50-millimeter fixed focal length lens. This configuration is the industry-accepted standard for approximating the field of vision in a static view of the human eye. The camera positioning was determined with a sub-meter, differentially corrected global positioning system (GPS). The camera was positioned at eye-level for each photograph.

The site photos were used to generate a rendering of the existing conditions and a proposed visualization of the implemented Project. The visual simulations provide clear before-and-after images of the location, scale, and visual appearance of the features affected by and associated with the Project. The simulations were developed through an objective analytical and computer-modeling process and are accurate within the constraints of the available site and alternative data (3-dimensional computer model was created using a combination of AutoCAD files and geographic information system [GIS] layers and exported to Autodesk's 3-dimensional Studio Max for production). Design data — consisting of engineering drawings, elevations, site and topographical contour plans, concept diagrams, and reference pictures — were used as a platform from which digital models were created. In cases where detailed design data were unavailable, more general descriptions about alternative facilities and their locations were used to prepare the digital models.

4.0 DESCRIPTION OF POTENTIAL VISUAL EFFECTS

This section describes views from each KOP, first under existing conditions, and then with the proposed Project simulated. The visual simulations illustrate the location, scale, and conceptual appearance of the Project, as seen from each KOP. These visual simulations allow for comparison of pre-Project and post-Project conditions as discussed qualitatively below. KOP locations are shown in Figure 2. Existing and simulated images are included in Figure 3 and Figure 4.

4.1 VIEW FROM WILKINS ROAD (KOP 1)

4.1.1 Existing View

KOP 1 is located along Wilkins Road, at its intersection with Weist Road, adjacent to the southwest corner of the Project site. The view from KOP 1 is to the north, toward the proposed Project's solar arrays and substation (Figure 3a). This viewpoint represents views from an identifiable point along the most proximate roadway, where topography allows visibility of the Project site. This view is characterized by the contrast between the vegetated and relatively flat area in the foreground and middleground of the view and Chocolate Mountains backdrop, which appears multi-colored and defines the skyline with its jagged and irregular form. The tree in the center of the view, as well as other vegetation, partially block views toward the Project site. A utility tie-in pole is visible on the far side of Wilkins Road in the left half of the view.

4.1.2 View with Project

Figure 3b shows the view from KOP 1 with the proposed Project simulated. The gen-tie structures, which would extend from the Project site approximately 2,500 feet toward the KOP, would be the most prominently visible portion of the Project from this location. As conceptually shown in the simulation, they would be visible in the center of the view and the southernmost structure would connect to the existing IID line in the left edge of the view, replacing the current interconnection to the parcel. While appearing as new and highly visible features, the transmission structures would relate to the numerous lines visible throughout the landscape, including the line to which the Project would interconnect. They would also occupy a relatively narrow portion of the view to the north from KOP 1.

The substation for the proposed Project has not yet been designed. However, the facility shown in Figure 3b is an approximation based on representative examples of substations of similar size and in similar environments. As simulated, the substation would be partially visible in views from KOP 1, alongside the solar arrays, which would appear as a comparatively dark, horizontal bar across a portion of the view's middle ground. Aside from the relatively narrow gen-tie structures, no Project component would substantially obscure or appear above the mountain skyline from this vantage point.

4.2 VIEW FROM GAS LINE ROAD (KOP 2)

4.2.1 Existing View

KOP 2 is located along Gas Line Road, 2.2 miles north of Beal Road and just under 0.5 mile east of the Project site. Multiple transmission lines are visible extending across the view, with a tubular-steel pole in the immediate foreground and the H-frame towers appearing in front of the Project site (see Figure 4a). This viewpoint represents views from workers and travelers along the north-south oriented Gas Line Road as well and from the broader, slightly uphill area to the east. The view is characterized by the visible striations, or the layered qualities of what appear in view as linear elements. Beyond the Project site is another transmission line, an orchard that appears linear in form from this vantage point, and the railroad and SR 111 corridor, which is not discernible in this view. The Salton Sea appears here as a strip of royal blue hue across the middleground of most of the view, beyond which are the Santa Rosa and Vallecito Mountains. While jagged and uneven, the distant mountain skyline's linear qualities are accentuated in this view due to the layer of snow visible along numerous peaks and upper extents of the mountain. The gradual downward slope of the Project site is apparent only by reference to further, observably lower elements in the view.

4.2.2 View with Project

Figure 4b shows the view from KOP 2 with the proposed Project simulated. The proposed Project here would appear within the front portion of the view's middleground, within the layered landscape described for the existing view. From 0.5 mile away and a slightly higher elevation, the Project would appear as a generally uniform line across the view, with solar arrays broken up by internal roads. The substation would be detectable beyond the arrays in the southern portion of the Project site, and the gen-tie structures would be visible extending to the south from the Project site. The land east of the Salton Sea would serve as backdrop to the substation, which the gen-tie poles would appear against the water body, itself.

Portions of the landscape beyond the Project, including the orchard, would be obviated by the Project. The blue-toned color of the arrays under conditions simulated here (morning light, mostly sunny skies) would relate to the Salton Sea, the southeastern shoreline of which would remain visible beyond the Project. This would distinguish the Project from the sea in this view, reinforcing their respective scales. With this definition, the size of the proposed Project relative to the broader landscape, and its visual similarity to – but physical distinction from – a body of water would be observable. The overall effect shown in Figure 4b is the relatively small degree of contrast the Project would have with its broader surroundings, as seen in expansive, slightly uphill views from the east.

5.0 PRELIMINARY CEQA ANALYSIS

This technical report will inform the Project's eventual evaluation of potential environmental effects in order to satisfy the California Environmental Quality Act (CEQA). There are four CEQA criteria for Aesthetics. Each is presented here as a question, with preliminary assessments of impact to visual resources provided.

1. **Would the Project have a substantial adverse effect on a scenic vista?**

   No Impact. Scenic vistas are typically expansive views from elevated areas. They may or may not be part of a designated scenic overlook or other area providing a static vista view of a landscape. There are no designated scenic vistas in the Project vicinity. Views to the west from elevated areas near the Project site, including views from Gas Line Road, could be considered scenic vistas given the expansiveness of the views and distance one can see under favorable conditions. As described above for the view of the Project from KOP 2, the Project would not have a substantial adverse effect on such views. Rather, it would be absorbed into the natural and built features that comprise the existing landscape. Therefore, no impacts to scenic vistas would occur.

2. **Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

   No Impact. There no designated or eligible state scenic highways in the Project vicinity. The nearest road segment among those identified by Imperial County as "having potential as state-designated scenic highways" is the portion of SR 111 from Bombay Beach to the Imperial County / Riverside County boundary. The Project site is approximately 14 miles south of Bombay Beach. Therefore, no impacts to state scenic highways would occur.

3. **Would the Project 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 point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?**

   Less-than-Significant Impact. The existing visual character in views of the Project would not be substantially altered based primarily on the proximity of viewpoints to the Project site. In the view from KOP 1, new, transmission structures that would be part of the Project's interconnection, would appear large in scale, but would be comparable in size and appearance to other structures visible throughout the surrounding landscape in multiple existing transmission lines. The view from KOP 1 shows the Project, and its substation and fence, at a distance of just under 0.5 mile away. The view is partially blocked by roadside vegetation and views from other nearby publicly accessible viewpoints – including from points further north or south along Wilkins Road or east along Weist Road – would be partially to fully obscured by roadside vegetation or berms. Like the view from KOP 1, such views would likely be of short duration given the probability of the viewers being in moving vehicles. The view from KOP 2 represents elevated views from the nearest roadway to the east. As previously described, the Project would not substantially degrade the existing visual character or quality of views from this distance; rather it would appear absorbed into the broader landscape that already includes agricultural

development, electricity transmission, geothermal power plants, IID facilities and infrastructure, and, 0.5 mile to the south, an existing utility-scale solar facility. These effects would be less than significant.

4. **Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

   Less-than-Significant Impact. The Project would not include any source of substantial nighttime lighting. Any lighting required for safety and security within the Project site would be hooded and oriented downward. It would not be a source of substantial light in the area outside of the Project site.

   Stantec produced a Glare Hazard Analysis Report for the Project (Stantec, 2019). It concluded that viewers at Observation Points 1 and 2 (which are the same as KOP 1 and KOP 2), the representative viewpoints relied upon in this technical report (and referred to in the Glare Hazard Analysis Report as Vantage Points 6 and 15), would experience no glare effects from the Project. These effects would be less than significant.

6.0 CONCLUSIONS

The Wister PV Solar Power Plant would result in the construction of solar arrays, a substation, and associated structures on a currently undeveloped site within the Colorado Desert, just southeast and slightly uphill from the Salton Sea and the SR 111 corridor. In views from publicly accessible locations, the proposed Project would be visible and identifiable, though it would not alter existing visual character (see discussion of KOP 1). Further, such views of the proposed Project would be limited in both duration and availability. In most views, much or all of the Project would be absorbed into the broader landscape, its darker hues relating to the appearance of the Salton Sea and nearby vegetation, all of which appear as linear or low, flat polygons from locations of more than 0.5 mile away. The majority of this portion of the Imperial Valley is dedicated to agricultural and power production and transmission. The Project would appear consistent with existing patterns of croplands, orchards, geothermal facilities, utility infrastructure, solar facilities, and other mechanized or industrial-appearing development.

7.0 REFERENCES

Barrett's Biological Surveys. 2018. Wister Solar 640-Acre Project – Habitat Reconnaissance Report.

Imperial County Planning & Development Services Department. 2008. Imperial County General Plan – Circulation and Scenic Highways Element. Available online: http://www.icpds.com/?pid=571

Stantec. 2019. Wister Solar Project, Imperial County, California – Glare Hazard Analysis Report.

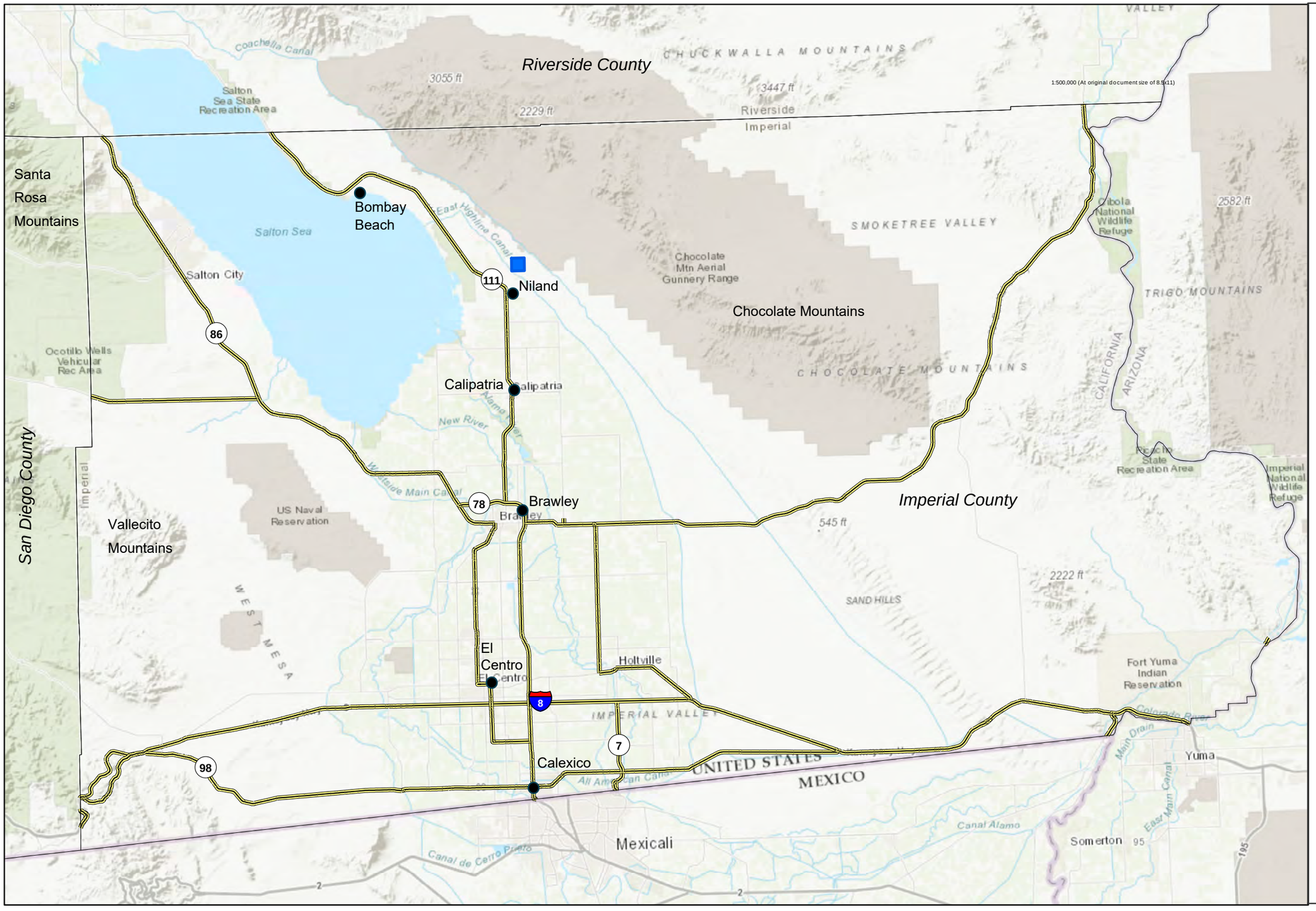

Figure No.

1

Title

Project Location

Client/Project

Orni Wister Solar Project

Project Location

Imperial County, CA

Prepared by DC on 2019-3-28

Project Location
County Boundaries
Highways

0 5 10 Miles

N

Notes
1. NAD 1983 CORS96 StatePlane California V FIPS 0405 Ft US
2. Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS

Stantec

PC ORIGINAL PKG

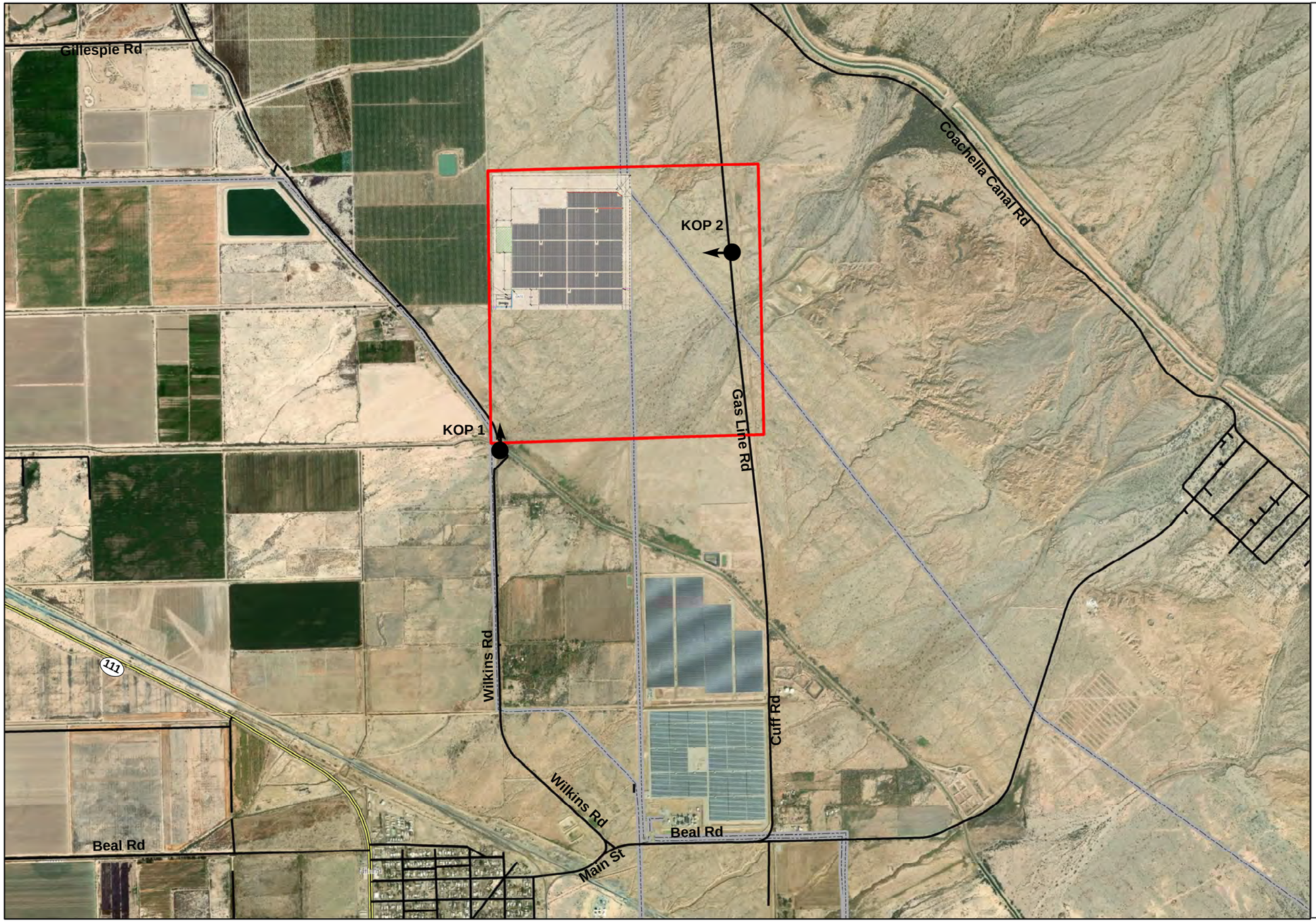

Figure No.

2

Title

Project Site and Key Observation Points

Client/Project

Orni Wister Solar Project

Project Location

Imperial County, CA

Prepared by DC on 2019-3-28

Key Observation Points
Project Boundaries
Roads
State Highways
Transmission Lines

0 0.25 0.5 Miles

N

Stantec

Figure 3a. Existing view to the northeast from KOP 1, located near the intersection of Wilkins Road and an unnamed private road.

Figure 3b. Simulated view from KOP 1: The Project would appear in the center of the view, with the gen-tie line, as conceptually simulated, extending from the Project site toward the Project interconnection at Wilkins Road.

Stantec

Figure 3
Key Observation Point 1
Orni Wister Solar Project

PC ORIGINAL PKG

Figure 4a. Existing view to the west-southwest from KOP 2, located along Gas Line Road, east of the Project site.

Figure 4b. Preliminary simulated view from KOP 2. The Project would appear beyond the H-frame transmission structures visible across the view.

Stantec

Figure 4
Key Observation Point 2
Orni Wister Solar Project
PC ORIGINAL PKG

Wister Solar Project
Imperial County, California

Glare Hazard Analysis Report

Stantec

Prepared for:
Ormat Wister Solar

Prepared by:
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- Victor Sainz

Under supervision of:
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Independent review by:
- Jennifer Brunty PhD, PMP

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Prepared on: June 6, 2019
Revised on: February 21, 2020

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Abbreviations

deg	degrees (0 is due north, 180 is due south)
DNI	Direct Normal Irradiance
FP	Flight Path (landing path from threshold to two miles out)
ft	feet
kW	kilowatt
kWh	kilowatt hour
mi	mile
min	minutes
mrad	milliradian
MW	Megawatt
NM	Nautical Miles
OP	Observation Point (e.g. control tower, vehicle location)
PV	Photovoltaic
USMC	United States Marine Corps
VP	Vantage points (also known as Observation Point, OP)

Glossary*

Correlate Slope Error with Surface Type?	Correlates the slope error value based on the surface material type; default value is 8.43 mrads.
Eye Focal Length (m)	Typical distance between the cornea and the retina of the human eye, default is 0.017, though some sources indicate that the typical length is 0.022.
Glide Slope (deg)	Angle at which the plane approaches the runway during landing (default is 3 degrees from horizontal).
Maximum Tracking Angle (deg)	Value set when the rotation angle is limited in the clockwise and counterclockwise directions.
Resting Angle (deg)	Angle modules return to after maximum angle is reached.
Observation Point	A specific location, such as a control tower or vehicle, from which an observer might experience glare.
Ocular Transmission Coefficient	Related to the ability of the eye to transmit light, set at 0.5 by Forge Solar.
Tracking Axis Panel Offset (deg)	The vertical offset between the tracking axis and the panel.
Orientation of Tracking Axis (deg)	Direction of the tracking axis clockwise from true north.
Peak DNI (W/m^2)**	This value is set at 1,000 by ForgeSolar and is the amount of solar radiation per unit surface area by a surface perpendicular to the sun's rays in a straight line from the direction of the sun at its current position in the sky.
Pupil Diameter (m)	Typical pupil diameter for observer, default is 0.002 m.
PV Array Axis Tracking	Panel tracking mode, if any. Panel can be set to track along one (single) or two (dual) axis tracking. This parameter affects the positioning of the panels at every time step when the sun is up.
PV Array Panel Material	Surface material of panels, including use of anti-reflective coating (ARC). Options include: smooth glass without ARC, smooth glass with ARC, light-textured glass without ARC, light-textured glass with ARC, and deeply textured glass.
Rated Power (kW)	Power rating of the solar array - used to estimate the energy output per year of the array (optional).
Slope Error (mrad)	Accounts for beam scatter of sunlight on the array. Default is 8.43 mrads but the value may be adjusted based on the panel material type.

Subtended Angle of Sun (mrad)	The angle above horizontal at which the viewer observes the sun, default value is 9.3 mrad.
Threshold	The physical beginning of the runway. Aircraft are typically expected to be 50 ft above ground at this point.
Time Interval (min)	Time step intervals used by the program for analyses. Default is set to analyze for glare at every one minute interval throughout the year.
Timezone	Time zone difference from Greenwich Mean Time at the location of the analysis.
Tracking Axis Tilt (deg)	The elevation angle of the tracking axis. 0 degrees is facing straight up and 90 degrees is facing horizontally.
Vary Reflectivity	Varies panel reflectivity with sun position at each time step.
Maximum Downward Viewing Angle (deg)	The angle extending downward from the horizon indicating the maximum downward viewing angle from the cockpit. Used to determine whether glare is visible by the pilot along the flight path. Default is 30 degrees.

*Sources:

- Ho, Clifford, K., Cianian A. Sims, Julius E. Yellowhair. 2015. Solar Glare Hazard Analysis Tool (SGHAT) Users Manual v. 2H. Sandia National Laboratories
- https://www.ForgeSolar.com/

**Source: http://www.3tier.com/en/support/solar-prospecting-tools/what-direct-normal-irradiance-solar-prospecting/

APPENDIX
June 6, 2019

1.0 EXECUTIVE SUMMARY

Stantec utilized the web-based ForgeSolar Pro glare hazard analysis program to analyze the potential for glare from a proposed 20 MW photovoltaic solar power project as depicted in **Figures 1 and 2**. The program identifies the three (3) following types of glare (no color indicates no glare predicted):

GREEN - Low potential for temporary after-image.
YELLOW - Potential for temporary after-image.
RED - Potential for permanent eye damage.

Based upon the solar array parameters provided, glare from the proposed Wister Solar Project is not predicted to be visible to pilots flying planes at 5,500' above MSL. The flight path (FP) analyzed is at a heading of 270 deg, 1 to 3 Nautical Miles (NM) from the target (located 6.5 mi NE of the Wister Site). Glare is also not predicted for drivers on roads adjacent to the project. Vantage points OP2/4)& OP1/3 were analyzed for the roadways.

Note: Observation Points (OP) 2 & 4 are the same location with OP 2 at 5-ft and OP 4 at 9-ft viewing height. This also applies for OP 1 & 3; with OP 1 at 5-ft and OP 3 at 9-ft viewing height

2.0 INTRODUCTION

Stantec utilized the web-based ForgeSolar Pro glare hazard analysis program to perform the glare/glint analysis of the proposed Wister project. ForgeSolar provides a quantified assessment of (1) when and where glare will occur throughout the year for a prescribed solar installation, (2) potential effects on the human eye at locations where glare occurs, (3) a general map showing where glare is coming from within an array, and (4) the annual energy production from the photovoltaic (PV) array so that alternative designs can be compared to maximize energy production while mitigating the impacts of glare. ForgeSolar employs an interactive Google Map for site location, mapping the proposed PV array(s), and specifying observer locations or FPs. Latitude, longitude, and elevation are automatically recorded through the Google Interface, providing necessary information for sun position and vector calculations. Additional information regarding the orientation and tilt of the PV panels, reflectance, environment, and ocular factors are entered by the user.

The Project is approximately two (2) miles North East of Niland, in Imperial County, California, and adjacent to an area utilized by the USMC for training purposes. This glare study analyzes the FP provided by the USMC and two (2) observation points at ground level. If glare is found, the tool calculates the retinal irradiance and subtended angle (size/distance) of the glare source to predict potential ocular hazards ranging from temporary after-image to retinal burn. Results are presented in a plot that specifies when glare will occur throughout the year, with color codes indicating the potential ocular hazard.

The analysis included in the report were revised based on an updated conceptual site plan dated July 26, 2019.

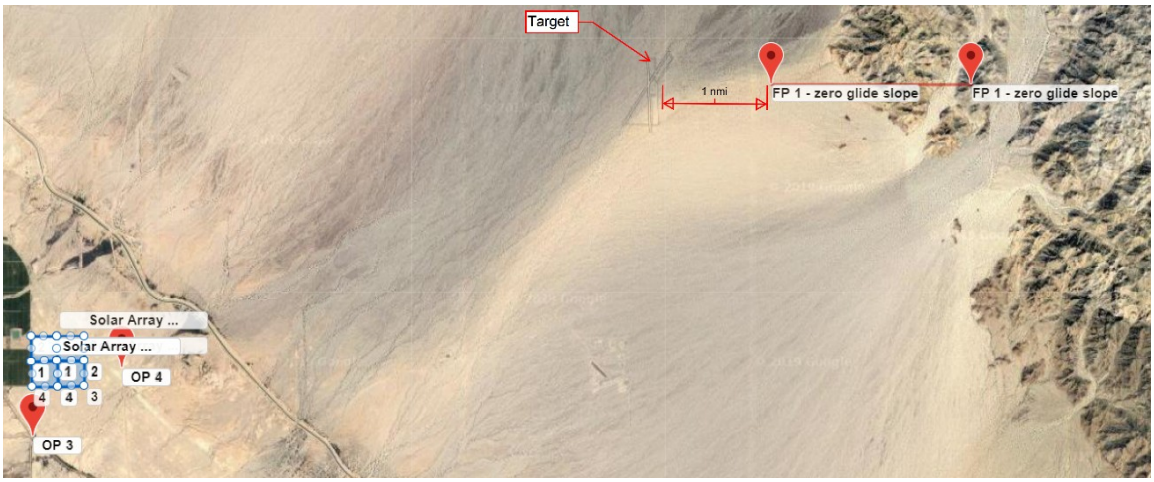


Figure 1: Wister Solar Project PV Array Layout in ForgeSolar depicting FP as requested by the USMC

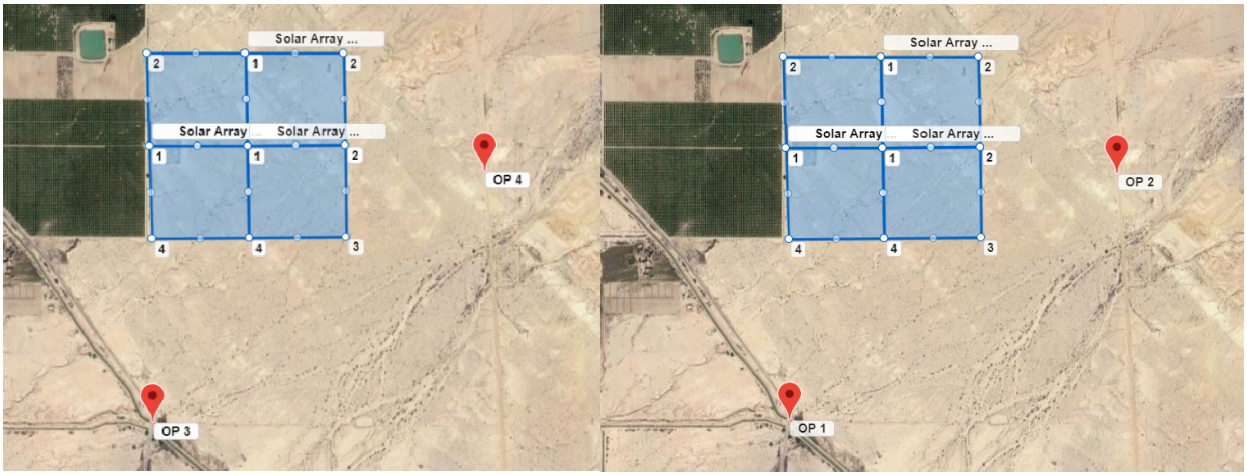


Figure 2: Wister Solar Project PV Array Layout in ForgeSolar depicting VPs at ground level

Note: The glare analysis reports included in the appendix show that four (4) arrays were used to perform the analyses. Due to the large size of the project, the accuracy of certain centroid based calculations would be reduced if the analysis was conducted as one (1) large array for the entire project. To avoid a reduction in calculation accuracy, the array was broken down into four (4) smaller arrays, which were then used to analyze the OPs and FP. The arrays were conservatively drawn slightly larger than the layouts provided.

3.0 DATA INPUT SUMMARY

The parameters used for the analyses are listed below. "Default" indicates the default parameter value set by ForgeSolar and is considered the most conservative value for the parameter. "Chosen" parameters were selected to perform the most conservative analysis with respect to glare potential.

3.1 SOLAR ARRAY

The location of the solar array and array parameters used for the analyses are based on information provided by Ormat (Client) for the Wister Solar project.

Table 1: Solar Panel Parameters Used (a detailed description of each parameter is provided in the Glossary):

Parameter	**Value Used**	**Default, Chosen, or Provided?**
Axis tracking	Single	Provided
Tracking Axis Tilt (deg)	0.0	Provided
Tracking Axis Orientation (deg)	180.0	Provided
Tracking Axis Panel Offset (deg)	0.0	Default
Maximum Tracking Angle (deg)	52.0	Provided
Resting Angle (deg)	52.0	Chosen
Rated Power (kW)	0.0 kW	Default
Vary reflectivity?	Yes	Default
Panel material	Smooth glass with ARC	Provided
Timezone offset	-8.0	Chosen

Subtended angle of sun (mrad)	9.3	Default
Peak DNI (W/m^2)	1,000	Default
Ocular transmission coefficient	0.5	Default
Pupil diameter (m)	0.002	Default
Eye focal length (m)	0.017	Default
Time interval (min)	1	Default
Correlate slope error with surface type?	Yes	Default
Slope error (mrad)	8.43	Default

It should be noted that a 'resting angle' of 52 degrees was used for the panels in the analysis. If a resting angle of 0 degrees (panels facing straight up) is used in the analysis, the program moves the panels to 0 degrees instantly once the sun drops below 52 degrees in either direction. This results in the panels facing straight up during sunrise and sunset, under which conditions the program predicts yellow glare. Panels should therefore not be 'rested' in a 0- degree position when the sun is above the horizon.

3.2 FLIGHT ANYALSIS:

Two (2) flight paths were analyzed for the Wister solar project (Figure 1). The first flight path is located approximately 1NM to the east of the center of the target. The heading of flight path one (1) is 270 deg. The ForgeSolar program automatically plots and analyzes points at the threshold and continuously for up to 2 miles in a straight direction (270 deg) from the threshold. The program also determines the altitude at each point based on the plane height at the threshold and the glide slope for landing. Flight path one (1) is at a constant altitude of 5,500' MSL. In addition, the analysis considered pilot visibility from the cockpit based on default values of 30 degrees for the vertical view restriction and 50 degrees for the azimuthal view restriction (Figure 1).

3.3 ROADWAYS ADJACENT TO THE SOLAR ARRAYS:

Two (2) observation points (also referred to as vantage points) were analyzed for vehicles travelling along adjacent roads. The Observation Points (OP) were chosen to correspond with Vantage Points (VP) used in the Project's Planning Documents. Potential glare to drivers was evaluated for both passenger vehicles and semi-trucks, where the passenger vehicles were assumed to have a maximum viewing height of 5 ft while the viewing height for drivers of semi-trucks was assumed to be a maximum of 9 ft. Locations of the chosen roadway routes are shown as red pins (OP 1 & 2) in Figure 2.

4.0 GLARE ANALYSES RESULTS

Stantec utilized the web-based ForgeSolar program for the glare analyses. ForgeSolar analyzed glare potential in one-minute increments throughout the year. The program identifies the three (3) following types of glare (no color indicates no glare predicted):

GREEN - Low potential for temporary after-image.
YELLOW - Potential for temporary after-image.
RED - Potential for permanent eye damage.

4.1 USMC FLIGHT PATH

Based on the input parameters described above, glare is not predicted for the USMC flight path from approximately one (1) to three (3) Nautical Miles east of the target with a heading of 270 deg at an altitude of 5,500' MSL as shown in **Figure 1**.

4.2 ROADWAYS ADJACENT TO THE SOLAR ARRAYS

Glare is also not predicted for drivers at either of the two (2) OP included in the analysis for drivers with viewing heights of 5 ft and 9 ft above ground (Figure 2).

5.0 CONCLUSIONS

Based upon the solar array parameters provided, glare is not predicted to occur from the proposed Wister Ormat Solar Project for planes approaching the target 1 NM to 3 NM away, heading 270 deg at an elevation of 5,500' MSL. Glare is also not predicted for drivers of vehicles at the OPs adjacent to the project at either 5-ft (cars and small trucks) or 9-ft (semi-trucks) viewing heights.

It should be noted that a 'resting angle' of 52 degrees was used for the panels in the analysis. If a resting angle of 0 degrees (panels facing straight up) is used in the analysis, the program moves the panels to 0 degrees instantly once the sun drops below 52 degrees in either direction. This results in the panels facing straight up during sunrise and sunset, under which conditions the program predicts yellow glare. Panels should therefore not be 'rested' in a 0- degree position when the sun is above the horizon.

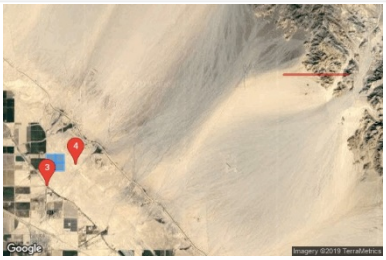
APPENDIX

ForgeSolar
PV planning & glare analysis

GlareGauge Glare Analysis Results

Site Configuration: Modified Site plan 25 MW 97 ac-temp-4

Project site configuration details and results.



Created **July 29, 2019 12:22 p.m.**
Updated **July 29, 2019 12:25 p.m.**
DNI **varies** and peaks at **1,000.0 W/m^2**
Analyze every **1** minute(s)
0.5 ocular transmission coefficient
0.002 m pupil diameter
0.017 m eye focal length
9.3 mrad sun subtended angle
Timezone **UTC-8**
Site Configuration ID: 29903.4971

Summary of Results No glare predicted!

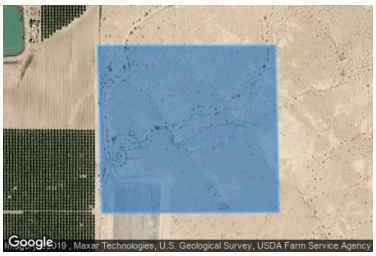
PV name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
Solar Array Ormat Wister Project North quad 1	SA tracking	SA tracking	0	0	-
Solar Array Ormat Wister Project North quad 2	SA tracking	SA tracking	0	0	-
Solar Array Ormat Wister Project North quad 3	SA tracking	SA tracking	0	0	-
Solar Array Ormat Wister Project North quad 4	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

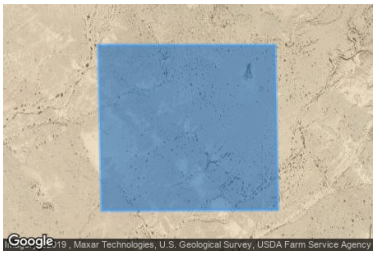
Name: Solar Array Ormat Wister Project North quad 1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 52.0 deg
Resting angle: 52.0 deg
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	33.274494	-115.510350	-21.49	5.00	-16.49
2	33.278120	-115.510460	-5.86	5.00	-0.86
3	33.278119	-115.505847	7.98	5.00	12.98
4	33.274511	-115.505758	-3.48	5.00	1.52



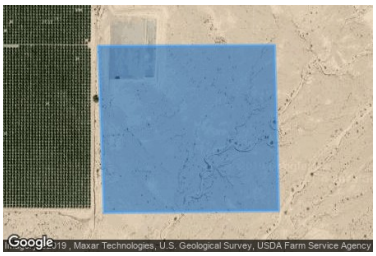
Name: Solar Array Ormat Wister Project North quad 2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 52.0 deg
Resting angle: 52.0 deg
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	33.278120	-115.505845	7.98	5.00	12.98
2	33.278120	-115.501230	30.99	5.00	35.99
3	33.274529	-115.501159	9.85	5.00	14.85
4	33.274512	-115.505756	-3.48	5.00	1.52



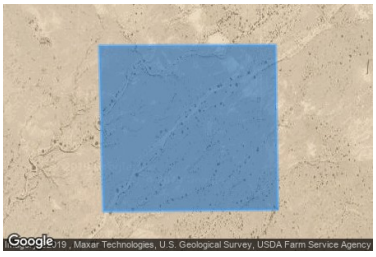
Name: Solar Array Ormat Wister Project North quad 3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 52.0 deg
Resting angle: 52.0 deg
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	33.274494	-115.510349	-21.49	5.00	-16.49
2	33.274512	-115.505756	-3.48	5.00	1.52
3	33.270909	-115.505647	-18.05	5.00	-13.05
4	33.270869	-115.510201	-29.11	5.00	-24.11



Name: Solar Array Ormat Wister Project North quad 4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 52.0 deg
Resting angle: 52.0 deg
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

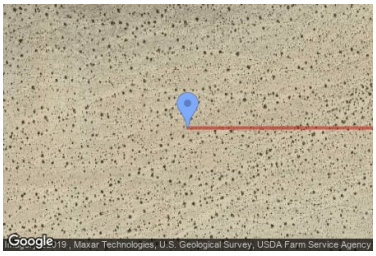
Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	33.274513	-115.505755	-3.48	5.00	1.52
2	33.274531	-115.501159	9.85	5.00	14.85
3	33.270949	-115.501102	-0.27	5.00	4.73
4	33.270910	-115.505646	-18.05	5.00	-13.05



2-Mile Flight Path Receptor(s)

Name: FP 1 - zero glide slope at 5500 MSL
Description:
Threshold height : 4876 ft
Direction: 270.0 deg
Glide slope: 0.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	33.314551	-115.381791	624.26	4876.01	5500.27
2-mile point	33.314551	-115.347152	1564.57	3935.70	5500.27



Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	33.263714	-115.510158	-47.01	9.00	-38.01
OP 2	33.273511	-115.494633	40.49	9.00	49.49
OP 3	33.263710	-115.510160	-47.01	5.00	-42.01
OP 4	33.273510	-115.494630	40.49	5.00	45.49

PC ORIGINAL PKG

PV Array Results

Solar Array Ormat Wister Project North quad 1

Component	Green glare (min)	Yellow glare (min)
FP: FP 1 - zero glide slope at 5500 MSL	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0

Solar Array Ormat Wister Project North quad 2

Component	Green glare (min)	Yellow glare (min)
FP: FP 1 - zero glide slope at 5500 MSL	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0

Solar Array Ormat Wister Project North quad 3

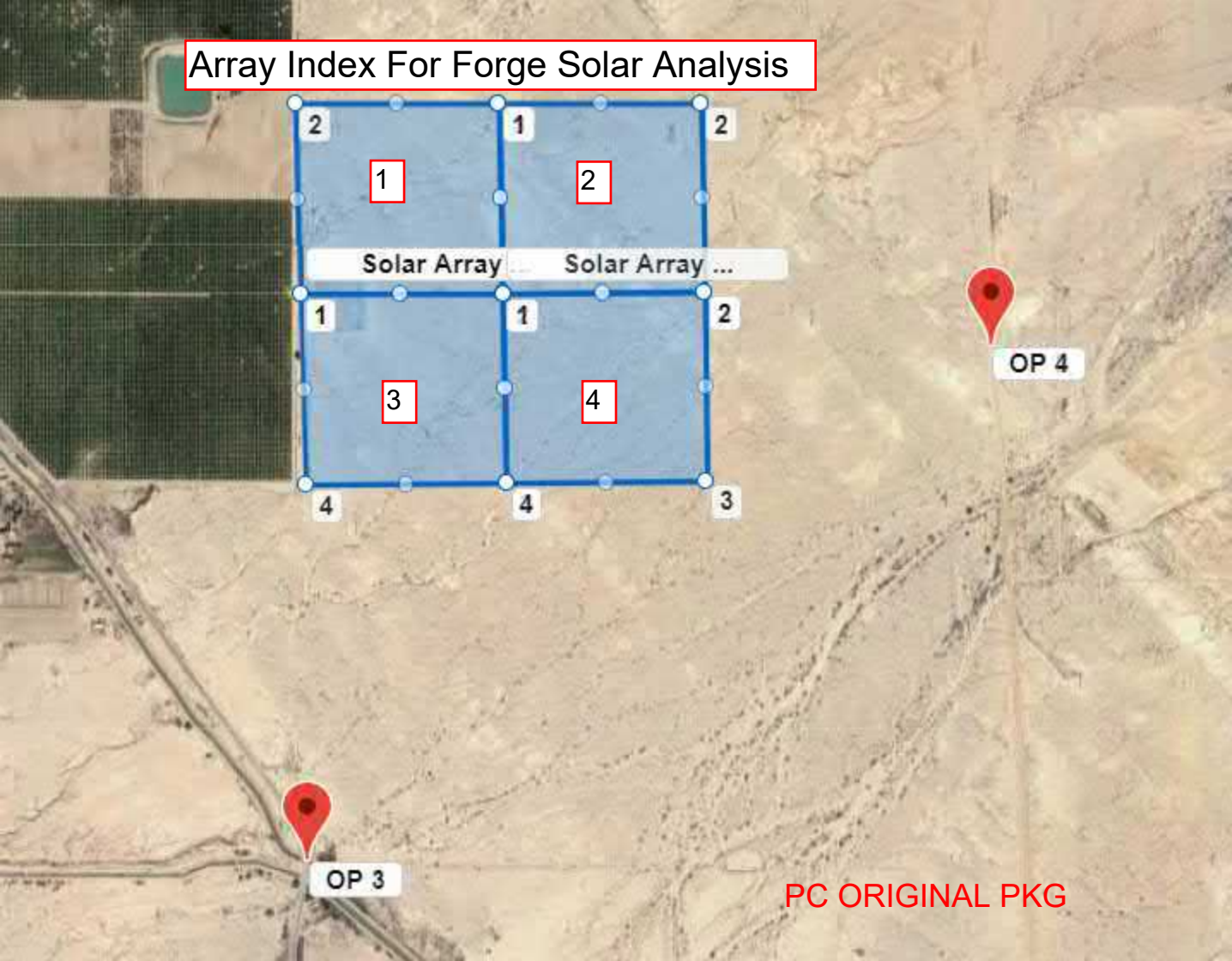
Component	Green glare (min)	Yellow glare (min)
FP: FP 1 - zero glide slope at 5500 MSL	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0

Solar Array Ormat Wister Project North quad 4

Component	Green glare (min)	Yellow glare (min)
FP: FP 1 - zero glide slope at 5500 MSL	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0

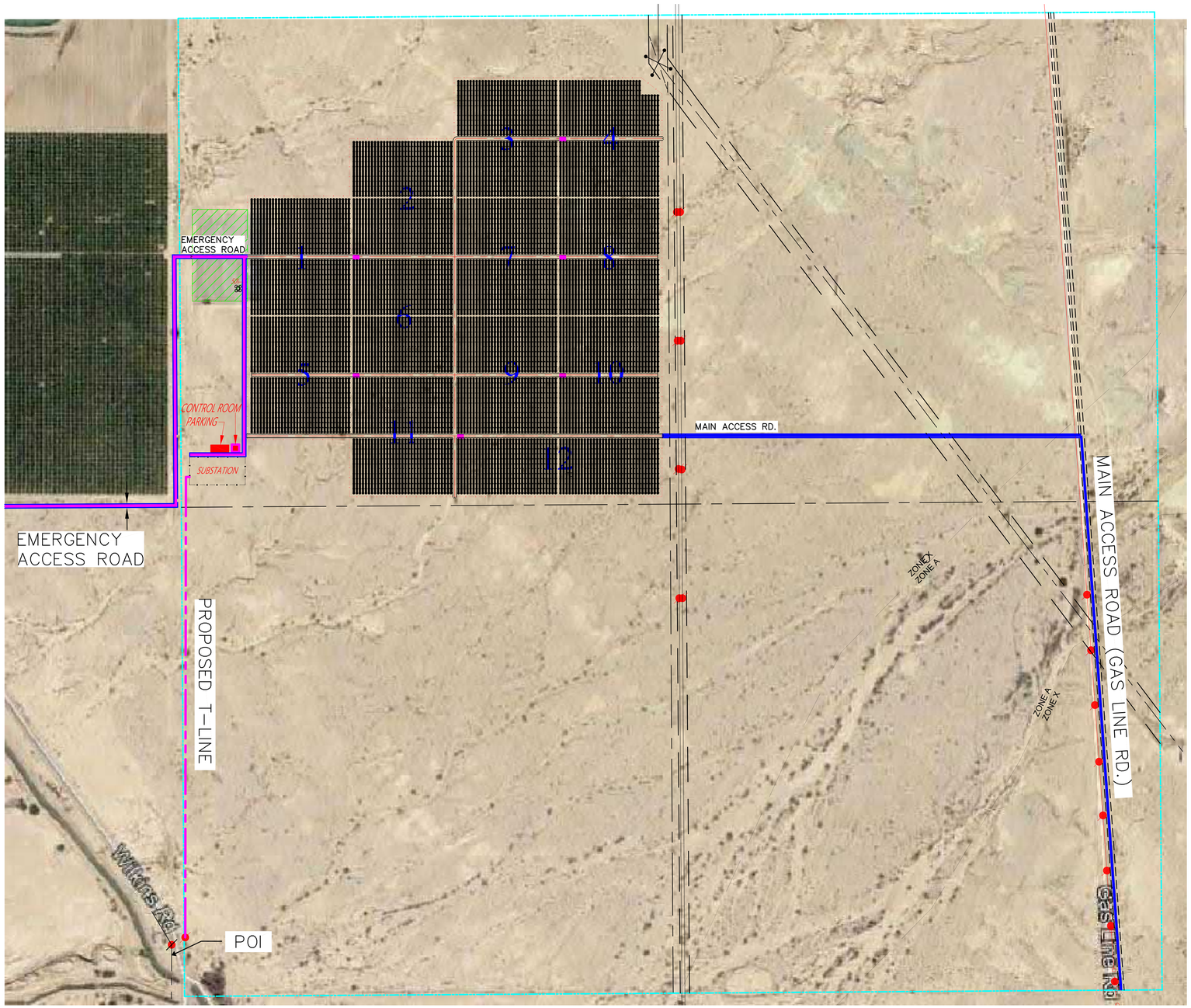
Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass continuous, not discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for assumptions and limitations not listed here.


Array Index For Forge Solar Analysis
2
1
2
1
2
Solar Array
Solar Array ...
1
1
2
3
4
4
4
3
OP 4
OP 3
PC ORIGINAL PKG

TOPOGRAPHICAL & SITE PLAN - 25 MW-DC Solar Project

COUNTY OF IMPERIAL, STATE OF CALIFORNIA



NORTH

SCALE: 1"=300'

300 0 300 600

GRAPHIC SCALE

LEGEND:

- PROPERTY LINE
- PROPOSED CHAIN LINK FENCE
- PROPOSED INVERTER LOCATION
- MAIN ACCESS ROAD
- EMERGENCY ACCESS ROAD
- LAYDOWN/TEMP OFFICE LOCATION

SOLAR FIELD
97.11± ACRES

25 MW-DC

SINGLE AXLE TRACKING

370 Watts Solar Panel

ORMAT

WISTER SOLAR PROJECT 25MW

TOPOGRAPHICAL PLAN

OWNER: ORMAT

Ed.Barajas

SHEET: 1

DATE: 04/08/2019 OF: 1

PC ORIGINAL DWG

Air Quality Technical Study for the Wister Solar Facility Project Imperial County, California

Wister Solar Project

Report Date:

June 24, 2020

Prepared for:

ORNI 33, LLC
6140 Plumas Street
Reno, NV 89519

Prepared by:

Stantec Consulting Services
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361

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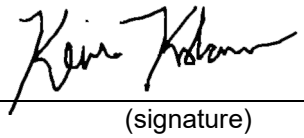
Prepared by: 

(signature)

For Nasrin Behmanesh, Ph.D., Air Quality and Climate Change Specialist

Updated by:_____

(signature)

Blake Barroso, Air Quality Specialist

Quality Review by: 

(signature)

Jonya Lofgren, Environmental Designer

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Abbreviations

AB	Assembly Bill
AC	Alternating current
ARB	Air Resources Board, California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CAA	Clean Air Act
CEQA	California Environmental Quality Act
CalEEMod	California Emissions Estimator Model
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CPUC	California Public Utility Commission
DC	Direct current
EO	Executive order
EPA	United States Environmental Protection Agency
GHG	Greenhouse gas
GWP	Global warming potential
ICAPCD	Imperial County Air Pollution Control District
IID	Imperial Irrigation District
kV	Kilovolt
LCFS	Low carbon fuel standard
NAAQS	National Ambient Air Quality Standards
NO_2, NOx	Nitrogen dioxide, oxides of nitrogen
O_3	Ozone
Pb	Lead
PM_{10}, and $PM_{2.5}$	Respirable particulate matter, and fine particulate matter
ppb, ppm	parts per billion, parts per million
PV	Photovoltaic
RPS	Renewable Portfolio Standard
ROG	Reactive organic gases
SB	Senate bill
SIP	State Implementation Plan
SO_2, and Sox	Sulfur dioxide and sulfur oxides
SSAB	Salton Sea Air Basin
TAC	Toxic air contaminants
VOC	Volatile organic compounds

1.0 INTRODUCTION AND PROJECT DESCRIPTION

This Air Quality Technical Study provides assessment of potential air quality and climate change impacts associated with construction and operation of the Wister Solar Power Project in Imperial County, California. The purpose of the Project is to utilize the abundance local solar energy to create a renewable energy and transmission system to support and encourage the development of renewable energy resources, consistent with the County's General Plan objectives. The Project applicant and the County have identified several purposes and objectives for the Project as follows:

- Construct, operate and maintain a reliable, safe, environmentally sound and economically efficient solar-powered electricity generating facility at a location with abundance of solar resource and potential.
- Help California meet its Renewable Portfolio Standard (RPS) requirements, which require that by 2030, California's electric utilities obtain 50 percent of the electricity they supply from renewable sources. This will also help achieve the greenhouse gas reduction goals of Assembly Bill 32 (AB 32-California Global Warming Solutions Act of 2006).
- Interconnect with electrical transmission infrastructure either planned or being constructed by other nearby projects, thus increase the opportunities for the sharing or using the existing utility transmission corridor(s).
- Operate a renewable energy facility that does not produce noise, minimizes greenhouse gas emissions and water use.
- Utilize a location that is in close proximity to an existing switching station and power lines. Thus, can supply additional on-peak power to the electrical grid in California.

1.1 SUMMARY PROJECT DESCRIPTION

ORNI 33, LLC (ORNI) is proposing to build, operate and maintain a solar power plant on private lands owned by ORNI in unincorporated Imperial County (refer to Figure 1). The Wister Solar Energy Facility (the Project) will use photovoltaic (PV) technology and would include the construction and operation of a 20 Megawatt (MW) solar farm on approximately 100 acres within the 640-acre Section (T10S, R14E, Section 27) owned by ORNI 33, LLC. The Project is located within Assessor's Parcel No. 003-240-001 and is currently zoned Open Space/Preservation (S-2). The proposed Project site is located about three miles north of the unincorporated town of Niland.

ORNI is developing the Wister Solar Energy Facility in order to reasonably maximize the Project's generating capacity, taking into account land and environmental constraints. ORNI intends to begin construction on the Project upon acquisition of all County entitlements and environmental clearance. Assuming one year to complete all permits, construction would begin the first quarter of 2020.

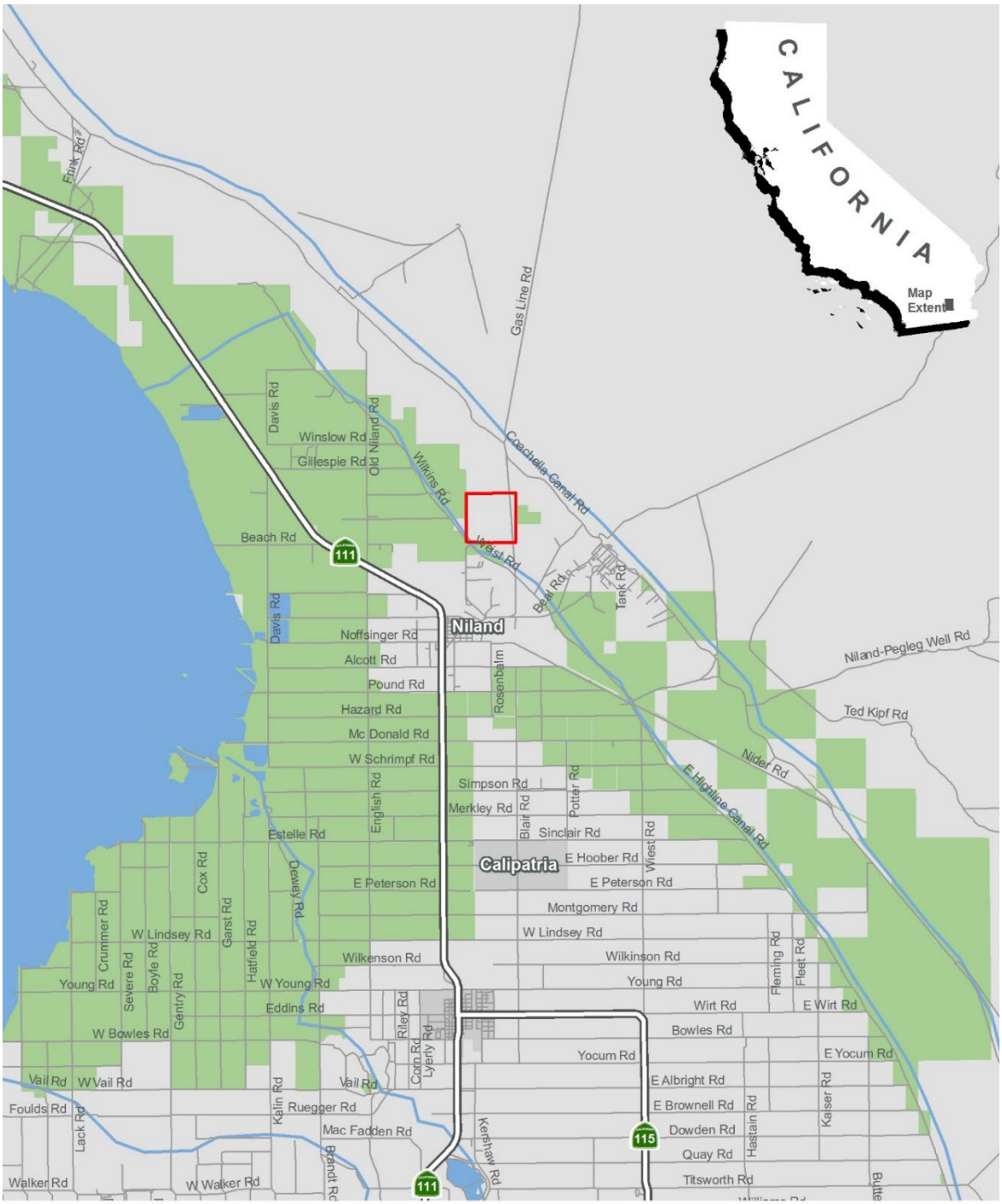
A Power Purchase Agreement (PPA) for 20 MW to San Diego Gas & Electric (SDG&E) has been secured by ORNI and encompasses the Project. Approximately 100 acres of total ground disturbance is anticipated for the Project including the proposed substation and utility building.

The Project site consists of one parcel located within unincorporated Imperial County that is currently vacant. Power generated at the Project would be low voltage direct current (DC) power that would be collected and routed to a series of inverters and their associated pad-mounted transformers. Each 2.1 MW array would have (1) one 2.1 MW inverter and (1) one 2.1 MW transformer, which are collectively known as a Power Conversion Station (PCS). The inverters would convert the DC power generated by the panels to alternating current (AC) power and the pad mounted transformers would step up the voltage to a nominal 12.47 kV voltage level. The proposed substation would connect to an existing Imperial Irrigation District 92 kV “K” Line. The power would then be sold to the wholesale market or retail electric providers in furtherance of the goals of the California Renewable Energy Portfolio Standards and other similar renewable programs in the Pacific Southwest power market. The proposed Project is intended to operate year-round. Using an array of thin film photo-voltaic (PV) modules to convert solar energy directly to electrical power for export to the electrical grid, the proposed Project would generate electricity during daylight hours when electricity demand is at its peak.

1.2 PROJECT LOCATION

The undeveloped Project site is in Imperial County, located west of Gas Line Road, approximately three miles north of unincorporated town of Niland. The geographic center of the proposed Project site roughly corresponds with 33.28° latitude, -115.50° longitude. Figure 1 illustrates the area of the Project solar farm. The Project would employ the use of PV power systems to convert solar energy into electricity. The solar generating facility would consist of 3.2-foot by 6.5-foot PV modules (or panels) on single-axis horizontal trackers in blocks that each hold 2,520 PV panels, with 90 modules in each of the 28 rows. The panels would be oriented from east to west for maximum exposure and the foundation would be designed based on existing soil conditions. The PV modules are made of a polycrystalline silicon semiconductor material encapsulated in glass. Installation of the PV arrays would include installation of mounting posts, module rail assemblies, PV modules, inverters (direct current, DC to alternate current, AC), transformers and buried electrical conductors. Concrete would be required for the footings, foundations and pads for the transformers and substation work. Tracker foundations would be comprised of either driven or vibrated steel posts/pipes, and/or concrete in some places. The Project site’s proposed main access would be located near the intersection of Wilkins road and an unnamed private road, just north of the East Highline Canal. This main access road would be located on the west side of the Gen-Tie Line, trending north to the substation from Wilkins Road. Primary emergency access would be located east of the Project site, accessible via Gas Line Road just north of the access road to the Niland Solid Waste Site. Secondary emergency access would be from the west, just south of an existing agricultural orchard, and would enter the Project site at the same location as the main access road. All access roads leading to the Project would be all-weather and composed of gravel.

Figure 1 Project Regional Location



The proposed Project would be required to conform to all California Public Utilities Commission (CPUC) safety standards. The Project site would be fenced with a 6-foot high chain link security fence topped with barbed wire and two gates would be located in each fenced area. The proposed Project would be operated on an “unstaffed” basis and, therefore, would not include construction of a permanent office.

1.3 PROJECT CONSTRUCTION SCHEDULE AND PHASING

Based on the Project’s CUP, it is anticipated that construction activities start in the first quarter of 2020 and would last approximately 6 to 9 months with the Project operation starting in 2021. Further details about the construction phasing are provided in the Methodology section of this report.

1.4 PROJECT OPERATION

Upon completion of the construction phase, the proposed Project would be operated on an unstaffed basis and would be monitored remotely, with periodic on-site personnel visitations for security, maintenance, and system monitoring. Therefore, full-time site personnel would not be required for regular Project operations, and employees would be on-site four times per year to wash the panels. As the Project’s PV arrays would produce electricity passively, maintenance requirements would be minimal. Any required planned service activities would generally consist of equipment inspection and maintenance and would be scheduled to avoid peak load periods. The unplanned maintenance would be typically responded to as needed, depending on the event.

Estimated annual water consumption for operation and maintenance of the proposed Project, including periodic PV module washing, would be approximately 0.81-acre feet annually (af/y), which would be trucked to the Project site as needed.

1.5 DECOMMISSIONING

Solar equipment has a lifespan of 20 to 25 years. At the end of the Project operation term, the applicant may determine that the Project should be decommissioned and deconstructed. Because the PV arrays supporting equipment sits on the surface of the land, when they are removed after the Project’s lifetime, the land will be largely unaltered from its natural state and available for agricultural use. Orni has prepared a Decommissioning Plan to ensure the decommissioning of the Project after its productive lifetime is conducted in accordance with County requirements. A Power Purchase Agreement (PPA) for 20 MW to San Diego Gas & Electric (SDG&E) has been secured by ORNI and encompasses the Project. Upon completion of the PPA term, the applicant (or assignee) would either have the option to enter into a subsequent PPA with another entity or decommission and remove the proposed Project and its components from the Project site. The Project site could then be converted to original land uses, in accordance with all applicable land use regulations and zoning conditions imposed on the Project site at that time.

2.0 AFFECTED ENVIRONMENT

2.1 EXISTING SETTING

The Project is located in Imperial County within the Salton Sea Air Basin (SSAB). The SSAB consists of all of Imperial County and a portion of Riverside County. Both the Imperial County Air Pollution Control District (ICAPCD) and South Coast Air Quality Management District (SCAQMD) have jurisdiction within the SSAB. The ICAPCD has full jurisdiction within all Imperial County and SCAQMD only has jurisdiction within Riverside County. Ambient air quality is affected by the climate, topography, and the type and amount of pollutants emitted.

2.1.1 Climate and Topography

The SSAB is generally an arid desert region, with a significant portion located below sea level. The climatic condition in the SSAB is strongly influenced by the large-scale sinking and warming of air within the semi-permanent subtropical high-pressure center over the Pacific Ocean. When the fringes of mid-latitude storms pass through the Imperial Valley in winter, the coastal mountains create a strong “rain shadow” effect that makes Imperial Valley the second driest location in the U.S. The flat terrain near the Salton Sea, intense heat from the sun during the day, and strong radiational cooling at night create deep convective thermals during the daytime and equally strong surface-based temperature inversions at night. The temperature inversions and light nighttime winds trap any local air pollution emissions near the ground. The area is subject to frequent hazy conditions at sunrise, followed by rapid daytime dissipation as winds pick up and the temperature rises.

The lack of clouds and atmospheric moisture creates strong diurnal and seasonal temperature variations ranging from an average summer maximum of 108 degrees (°) Fahrenheit down to a winter morning minimum of 38° Fahrenheit. The most pleasant weather occurs from about mid-October to early May when daily highs are in the 70s and 80s with very infrequent cloudiness or rainfall. Imperial County experiences significant rainfall an average of only four times per year. The rainy period of the year lasts for 3.4 months, from December 4 to March 16, with a sliding 31-day rainfall of at least 0.5 inches. The rainless period of the year lasts for over 8 months, from March to early December.

Winds in the area are driven by a complex pattern of local, regional, and global forces, but primarily reflect the temperature difference between the cool ocean to the west and the heated interior of the entire desert southwest. For much of the year, winds flow predominantly from the west to the east. In summer, intense solar heating in the Imperial Valley creates a more localized wind pattern, as air comes up from the southeast via the Gulf of California. During periods of strong solar heating and intense convection, turbulent motion creates good mixing and low levels of air pollution. However, even strong turbulent mixing is insufficient to overcome the emissions that emanate from the Mexicali, Mexico area because of the limited air pollution controls on those emission sources. Imperial County is predominately agricultural land. This is a factor in the cumulative air quality of the SSAB. The agricultural production generates dust and small particulate matter through the use of agricultural equipment on unpaved roads, land preparation, and

harvest practices. Imperial County experiences unhealthful air quality from photochemical smog and from dust because of extensive surface disturbance and the very arid climate.

The SSAB also experiences surface inversions almost every day of the year. These inversions are caused by the presence of the region's typical subtropical high-pressure cell, which causes the air mass aloft to sink. Air masses are large bodies of air with similar temperature and moisture content. An air mass aloft refers to the higher-altitude air mass which inductively suggests that there is a separate (and thus different in temperature and moisture content) air mass at ground level. As this air mass sinks, the temperature thereof rises through compressional heating, thus exceeding the temperature of the air below. This stable atmospheric condition, known as a subsidence inversion, becomes a nearly impenetrable barrier to the vertical mixing of pollutants. These inversions often last for long periods of time, which allows for air stagnation and the buildup of pollutants. During the winter, the area experiences radiation inversions in which the air near the ground surface cools by radiation, whereas the air higher in the atmosphere remains warmer. A shallow inversion layer is created between the two layers and precludes the vertical dispersion of air, thus trapping pollutants. The highest ozone levels are often associated with subsidence inversions.

2.1.2 Regulatory Setting

Federal, state, and local agencies have set ambient air quality standards for certain air pollutants through statutory requirements and have established regulations and various plans and policies to maintain and improve air quality, as described below.

2.2 CRITERIA POLLUTANTS

2.2.1 Federal

The federal Clean Air Act (CAA), which was passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The CAA delegates primary responsibility for clean air to the U.S. Environmental Protection Agency (EPA). The EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the act, the EPA has established the National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants that are pervasive in urban environments and for which state and national health-based ambient air quality standards have been established. Ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), lead (Pb), and particulate matter (PM10 – respirable particles less than 10 microns in diameter, and PM2.5 – fine particles less than 2.5 microns in diameter) are the six criteria air pollutants. Ozone is a secondary pollutant, Nitrogen oxides (NOX) and volatile organic compounds (VOCs) are of particular interest as they are precursors to ozone formation. The NAAQS are divided into primary and secondary standards; the primary standards are set to protect human health within an adequate margin of safety, and the secondary standards are set to protect environmental values, such as plant and animal life. The standards for all criteria pollutants are presented in Table 1.

The CAA requires EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The act also mandates that the state submit and implement a State Implementation Plan (SIP)

for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met.

2.2.2 State

The State of California began to set its ambient air quality standards (i.e., CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The California Clean Air Act (CCAA) was adopted by the California Air Resources Board (ARB) in 1988. The CCAA requires all air district of the state to achieve and maintain the CAAQS by the earliest practical date. Table 1 shows the CAAQS currently in effect for each of the criteria pollutants, as well as the other pollutants recognized by the state. As shown in Table 1, the CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Table 1: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	--	Same as Primary
	8 Hour	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)	
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	150 µg/m³	Same as Primary
	Annual Mean	20 µg/m³	--	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	--	35 µg/m³	Same as Primary
	Annual Mean	12 µg/m³	12.0 µg/m³	15 µg/m³
Carbon Monoxide (CO)	1 Hour	20 ppm (23 µg/m³)	35 ppm (40 mg/m³)	--
	8 Hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	--
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	--
	Annual Mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	--
	3 Hour	--	--	0.5 ppm (1300 µg/m³)
	24 Hour	0.04 ppm (105 µg/m³)	0.14 ppm	--
	Annual Mean	--	0.030 ppm	--
Lead (Pb)	30 Day Average	1.5 µg/m³	--	--
	Calendar Quarter	--	1.5 µg/m³	Same as Primary
	Rolling 3-Month Average	--	0.15 µg/m³	Same as Primary
Visibility reducing particles	8 Hour	10-mile visibility standard, extinction of 0.23 per kilometer	No National Standards	
Sulfates	24 Hour	25 µg/m³		
Hydrogen sulfide (H_2S)	1 Hour	0.03 ppm (42 µg/m³)		
Vinyl chloride	24 Hour	0.01 ppm (265 µg/m³)		

Notes:
ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; "--" = no standard.
Source: CARB 2016.

The ARB and local air districts are responsible for achieving CAAQS, which are to be achieved through district-level air quality management plans (AQMPs) that would be incorporated into the SIP. In California, the EPA has delegated authority to prepare SIPs to ARB, which in turn, has delegated that authority to individual air districts. Each district plan is required to either (1) achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air districts) and setting emissions standards for new motor vehicles and for other emission sources, such as consumer products and certain off-road equipment.

The CCAA substantially adds to the authority and responsibilities of air districts. CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures (TCMs). The CCAA also emphasizes the control of indirect and area-wide sources of air pollutant emissions and gives local air pollution control districts explicit authority to regulate indirect sources of air pollution.

2.2.3 Attainment Status

Depending on whether or not the applicable ambient air quality standards (AAQS) are met or exceeded, the air basin is classified as being in "attainment" or "nonattainment." The USEPA and CARB determine the air quality attainment status of designated areas by comparing ambient air quality measurements from state or local ambient air monitoring stations with the NAAQS and CAAQS. These designations are determined on a pollutant-by-pollutant basis. Consistent with federal requirements, an unclassifiable/ unclassified designation is treated as an attainment designation. Table 2 presents the federal and state attainment status for the project area. As shown in the Table 2, the Imperial County is currently designated as nonattainment for O3 and PM10 under state standards. Under federal standards, the County is in marginal nonattainment for O3, serious nonattainment for PM10, and moderate nonattainment for PM2.5. The area is currently in attainment or unclassified status for all other ambient air quality standards.

Table 2: Federal and State Attainment Status

Pollutant	Federal Designation	State Designation
Ozone (O_3)[1]	Marginal Nonattainment	Nonattainment
Particulate Matter (PM_{10})	Serious Nonattainment	Nonattainment
Particulate Matter ($PM_{2.5}$)	Moderate Nonattainment – partial[2]	Attainment
Carbon Monoxide (CO)	Unclassified/ Attainment	Attainment
Nitrogen Dioxide (NO_2)	Unclassified/ Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Unclassified/ Attainment	Attainment
Hydrogen Sulfide (H_2S)	-	Unclassified
Sulfates	-	Attainment
Visibility Reducing Particles	-	Unclassified

Notes:
(-) = Not Identified/ No Status.
[1] The SSAB is marginal nonattainment for the 2015 ozone standard and moderate attainment for the 2008 standard.
[2] Only the Imperial Valley portion of the County is nonattainment for PM2.5 NAAQS. USEPA Greenbook 2018, and Source: CARB 2017

***Toxic Air Contaminants Regulation*.** California regulates toxic air containments (TACs) primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588 – Connelly). In the early 1980s, the ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In August 1998, ARB identified diesel particulate matter (DPM) emissions from diesel-fueled engines as a TAC. In September 2000, ARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel fueled engines and vehicles (ARB 2000). The goal of the plan is to reduce diesel PM10 (inhalable particulate matter) emissions and the associated health risk by 75% in 2010 and by 85% by 2020. The plan identified 14 measures that target new and existing on-road vehicles (e.g., heavy-duty trucks and buses, etc.), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps, etc.), and stationary engines (e.g., stand-by power generators, etc.). During the control measure phase, specific statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles will be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions. The proposed Project would be required to comply with applicable diesel control measures.

2.2.4 Local

The ICAPCD is the agency responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. The air district was formed by the Air Pollution Control Act of 1947.

The ICAPCD adopted its CEQA Air Quality Handbook: Guidelines for the Implementation of the California Environmental Quality Act of 1970 in 2007 and amended the handbook in December 2017 (ICAPCD 2017). The ICAPCD CEQA Air Quality Handbook provides guidance on how to determine the significance of impacts, including air pollutant emissions, related to the development of residential, commercial, and industrial projects. Where impacts are determined to be significant, the ICAPCD CEQA Air Quality Handbook provides guidance to mitigate adverse impacts to air quality from development projects. The ICAPCD is the agency principally responsible for comprehensive air pollution control in the region.

The ICAPCD has developed rules and regulations that regulate stationary sources, area sources, and certain mobile source emissions, and is responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

Air Quality Plans. The ICAPCD has developed plans and strategies to achieve attainment for air quality ambient standards. The latest plans include the following:

- 2009 Imperial County Plan for PM_{10}
- 2012 Annual $PM_{2.5}$ SIP
- 2013 Plan for 2006 24-hour $PM_{2.5}$ for moderate nonattainment area
- 2017 Plan for 2008 8-hour Ozone standard
- 2018 Redesignation Request and Maintenance Plan for PM_{10}

The following ICAPCD rules are applicable to the Project:

Rule 106 – Abatement. If the ICAPCD determines that any person is in violation of the Rules and Regulations for limiting the discharge of air contaminants into the atmosphere, the ICAPCD may issue and order for abatement.

Rule 107 – Land Use. The Air Pollution Control Officer has the responsibility to protect public health and property from the damaging effects of air pollution and will review and advise the appropriate land use authorities on all new construction or changes in land use which could become a source of air pollution problems.

Rule 310 – Operational Development Fee: Provides the ICAPCD with a sound method for mitigating emissions produced from operations of new commercial and residential development projects by requiring project proponents to pay fees based on the project's emissions, type and size. The operational fees would assist in attaining the State and federal ambient air quality standards for PM10 and Ozone.

Rule 401 – Opacity of Emissions: Sets limits for release or discharge of emissions into the atmosphere, other than uncombined water vapor, that are dark or darker in shade as designated as No.1 on the Ringelmann Chart or obscure an observer's view to a degree equal to or greater than smoke does as compared to No.1 on the Ringelmann Chart, for a period or aggregated period of more than three minutes in any hour.

Rule 403 – General Limitations on the Discharge of Air Contaminants. Rule 403 sets forth limitations on emissions of pollutants, including particulate matter, from individual sources.

Rule 407 – Nuisance. Rule 407 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Stationary Sources

Rule 201 – Permits Required. The construction, installation, modification, replacement, and operation of any equipment which may emit or control Air Contaminants require ICAPCD permits.

Rule 207 – New and Modified Stationary Source Review. Establishes preconstruction review requirements for new and modified stationary sources to ensure the operations of equipment does not interfere with attainment or maintenance of ambient air quality standards.

Rule 208 – Permit to Operate. The ICAPCD would inspect and evaluate the facility to ensure the facility has been constructed or installed and will operate to comply with the provisions of the Authority to Construct permit and comply with all applicable laws, rules, standards, and guidelines.

Regulation VIII – Fugitive Dust Rules. Regulation VIII sets forth rules regarding the control of fugitive dust, including fugitive dust from construction activities. The regulation requires implementation of fugitive dust control measures to reduce emissions from earthmoving, unpaved roads, handling of bulk materials, and control of track-out/carry-out dust from active construction sites.

2.3 CLIMATE CHANGE AND GREENHOUSE GASES

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gases (GHGs), particularly those generated from the production and use of fossil fuels. While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), tetrafluoromethane, hexafluoroethane, HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane), and HFC-152a (difluoroethane).

GHGs refer to atmospheric gases that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These gases include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and water vapor, among others. A growing body of research attributes long-term changes in temperature, precipitation, and other elements of Earth's climate to large increases in GHG emissions since the mid-nineteenth century, particularly from human activity related to fossil fuel combustion. Anthropogenic GHG emissions of particular interest include CO2, CH4, N2O, and fluorinated gases.

GHGs differ in how much heat each can trap in the atmosphere (global warming potential, or GWP). The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO2, the most abundant GHG. The definition of GWP for a particular GHG is expressed relative to CO2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of carbon dioxide equivalent (CO2e). For example, the 2007 International Panel on Climate Change Fourth Assessment Report calculates the GWP of CH4 as 25 and the GWP of N2O as 298, over a 100-year time horizon (IPCC 2007). Generally, estimates of all GHGs are summed to obtain total emissions for a project or given time period, usually expressed in metric tons (MTCO2e), or million metric tons (MMTCO2e) (SMAQMD 2020).

In the U.S., the main source of GHG emissions is electrical generation followed by transportation (USEPA 2016). In California, however, transportation sources are the largest contributors of GHG emissions (CARB 2018). Emissions associated with electricity generation are the second largest contributor. The dominant GHG emitted is CO2, mostly from fossil fuel combustion.

Two terms are typically used when discussing the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” "Greenhouse gas mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. “Adaptation" refers to planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

2.3.1 Federal

At the federal level there is currently no overarching law related to climate change or the reduction of GHGs. The EPA is developing regulations under the CAA to be adopted in the near future, pursuant to the EPA’s authority under the CAA. Foremost amongst recent developments have been the settlement agreements between the EPA, several states, and nongovernmental organizations (NGOs) to address GHG emissions from electric generating units and refineries; the U.S. Supreme Court’s decision in Massachusetts v. EPA; and EPA’s “Endangerment Finding,” “Cause or Contribute Finding,” and “Mandatory Reporting Rule.” On Sept. 20, 2013, the EPA issued a proposal to limit carbon pollution from new power plants. The EPA is proposing to set separate standards for natural gas-fired turbines and coal-fired units. Although periodically debated in Congress, no federal legislation concerning GHG limitations is has yet been adopted. In Coalition for Responsible Regulation, Inc., et al. v. EPA, the United States Court of Appeals upheld the EPA’s authority to regulate GHG emissions under CAA. Furthermore, Under the authority of the CAA, the EPA is beginning to regulate GHG emissions starting with large stationary sources. In 2010, the EPA set GHG thresholds to define when permits under the New Source Review Prevention of Significant Deterioration (PSD) standard and Title V Operating Permit programs are required for new and existing industrial facilities. In 2012, EPA proposed a carbon pollution standard for new power plants.

2.3.2 State

California has been innovative and proactive in addressing GHG emissions through passage of legislation including Senate and Assembly bills and executive orders, some of which are listed below.

Executive Order (EO) S-3-05. In 2005, the governor issued EO S-3-05, establishing statewide GHG emissions reduction targets. The goal of this EO is to reduce California’s GHG emissions to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The EO further directed the secretary of the California EPA to oversee the efforts made to reach these targets, and to prepare biannual reports on the progress made toward meeting the targets and on the impacts to California related to global warming. The first such Climate Action Team Assessment Report was produced in March 2006 and has been updated every 2 years thereafter. This goal was further reinforced with the passage of Assembly Bill 32 (AB 32) in 2006 and Senate Bill 32 (SB 32) in 2016.

Assembly Bill 32 (AB 32 California Global Warming Solution Act). In 2006, California passed the California Global Warming Solutions Act of 2006 (*AB 32*; California Health and Safety Code Division 25.5, Sections 38500, et seq.), which codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost- effective reductions of greenhouse gases.” The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to

adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. The Scoping Plan was prepared and approved on December 11, 2008 and was later updated in May 2014. The update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals (to the level of 427 million MT of CO_2e) defined in the original Scoping Plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use. 2005, the governor issued EO S-3-05, establishing statewide GHG emissions reduction.

Under the "business as usual" (BAU) scenario established in 2008, statewide emissions were increasing at a rate of approximately 1 percent per year, as noted below. It was estimated that the 2020 estimated BAU of 596 MMT of CO_2e would have required a 28 percent reduction to reach the 1990 level of 427 MMT of CO_2e.

Senate Bill 97 (SB 97). Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Executive Order (EO) S-01-07 (January 18, 2007). This order, signed by Governor Schwarzenegger, sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Senate Bill 375 (SB 375). Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Executive Order B-30-15. On April 20, 2015, Governor Brown signed EO B-30-15 to establish a GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union which adopted the same target in October 2014. California is on track to meet or exceed its legislated target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, summarized above). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2°C, the warming threshold at which there will likely be major climate disruptions such as severe droughts and rising of sea levels. The targets stated in EO B-30-15 have not been adopted by the state legislature.

Senate Bill 32 (SB 32) September 2016. Chapter 249 of the bill codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030. SB 32 provides another intermediate target between the 2020 and 2050 targets set in EO S-3-05.

Renewable Energy Portfolio. The Renewable Portfolio Standard (RPS) promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Originally adopted in 2002 with the initial requirement that 20% of electricity retail sales must be served by renewable resources by 2017 (referred to as the "initial RPS"). The goals have been accelerated and increased by EOs S-14-08 and S-21-09 to a goal of 33 percent by 2020.

The program was accelerated in 2015 with SB 350 (de León, 2015) which mandated a 50% RPS by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires 65% of RPS procurement to be derived from long-term contracts of 10 or more years. In 2018, SB 100 (de León, 2018) was signed into law, which again increases the RPS to 60% by 2030 and requires all the state's electricity to come from carbon-free resources by 2045.

In April 2011, the Governor signed SB 2 (1X) codifying California's 33 percent RPS goal; Section 399.19 requires the California Public Utilities Commission, in consultation with the California Energy Commission, to report to the Legislature on the progress and status of RPS procurement and other benchmarks. The purpose of the RPS upon full implementation was to provide 33 percent of the state's electricity needs through renewable energy sources. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.

The program was further accelerated in 2015 with SB 350 (de León, 2015) which mandated a 50% RPS by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires 65% of RPS procurement to be derived from long-term contracts of 10 or more years. Most recently, on September 10, 2018, Governor Brown signed the SB 100 which aims at eliminating fossil fuel from electricity generation in California. The Bill sets a target of 100 percent carbon-free electricity by 2045.

The RPS is included in ARB's Scoping Plan list of GHG reduction measures to reduce energy sector emissions. It is designed to accelerate the transformation of the electricity sector through such means as investment in the energy transmission infrastructure and systems to allow integration of large quantities of intermittent wind and solar generation. Increased use of renewables would decrease California's reliance on fossil fuels, thus reducing emissions of GHGs from the electricity sector. In 2008, as part of the Scoping Plan original estimates, ARB estimated that full achievement of the RPS would decrease statewide GHG emissions by 21.3 million MT CO_2e. In 2010, ARB revised this number upwards to 24.0 million MT CO_2e.

2.3.3 Air Pollutants

2.3.3.1 Criteria Pollutants

The federal and state governments have established ambient air quality standards for six criteria pollutants: carbon monoxide (CO), ozone (O3), particulate matter (PM), nitrogen dioxide (NO2), sulfur dioxide (SO2), and lead (Pb). Ozone and particulate matter are generally considered as regional pollutants because they or their precursors affect air quality across a region. Pollutants such as CO, NO2, SO2, and Pb are local

pollutants in that they tend to accumulate in the air locally. In addition to being a regional pollutant, particulate matter is also considered a local pollutant. In the area of the proposed project site, ozone and particulate matters are of particular concern because of their attainment status at the regional level.

Ozone (O_3) is reactive gas consisting of three atoms of oxygen. Ozone is not directly emitted into the air but is formed by a photochemical reaction in the atmosphere. It is a secondary pollutant that is formed when NOx and volatile organic compounds (VOC) react in the presence of sunlight. Ozone at the earth's surface causes adverse health effects on respiratory and cardiovascular system and is also a component of smog. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation.

Nitrogen Dioxide (NO_2) is one of a group of highly reactive gasses known as "oxides of nitrogen," or "nitrogen oxides" (NOx). These gases form when fuel is burned at high temperatures and come principally from on-road and off-road motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A suffocating, brownish gas, nitrogen dioxide is a strong oxidizing agent that reacts in air to form corrosive nitric acid, as well as toxic organic nitrates. It also plays a major role in the atmospheric reactions that produce ground-level ozone (or smog).

Carbon Monoxide (CO) is an odorless, colorless gas that is highly toxic. CO is a public health concern because it combines readily with hemoglobin in human blood, reducing the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea to death. CO is formed by the incomplete combustion of fossil fuels and is emitted directly into the air. In urban areas, motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains emit CO, however, the main source of CO is on-road motor vehicles. Because of the local nature of CO problems, ARB and EPA designate urban areas as CO nonattainment areas instead of the entire basin as with ozone and PM_{10}. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled, with the introduction of new automotive emission controls and fleet turnover.

Particulate Matter (PM_{10} and $PM_{2.5}$) Particulate matter emissions are generated by a wide variety of sources, including agricultural activities, industrial emissions, fugitive dust from earth disturbance activities, dust suspended by vehicle traffic and construction equipment, and secondary PM formed by reactions in the atmosphere. Secondary PM forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. Major sources of $PM_{2.5}$ and ultrafine particle are combustion sources such as motor vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources also include sources from roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust.

Scientific studies have linked both long- and short-term particle pollution exposure to a variety of health problems. PM_{10} and $PM_{2.5}$ pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system and damage the respiratory tract. PM_{10} and $PM_{2.5}$ can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body’s ability to fight infections. Suspended particulates also damage and discolor surfaces on which they settle and contribute to haze and reduce regional visibility.

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. However, like airborne NOX, suspended SOX particles contribute to the poor visibility. These SOX particles can also combine with other pollutants to form PM2.5. The prevalence of low-sulfur fuel use has minimized problems from this pollutant.

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. The health effects of lead poisoning include loss of appetite, weakness, and miscarriage. Lead can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

2.3.3.2 Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. Although there are no ambient standards established for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or other acute (short-term) or chronic (long-term) health problems. For TACs that are known or suspected carcinogens, the ARB has consistently found that there are no levels or thresholds below which exposure is risk free. Individual TACs vary greatly in the risks they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health effects, a similar factor, called a Hazard Index, is used to evaluate risk. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA). Examples of TAC sources include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources. The TACs that are relevant to the implementation include diesel particulate matter (DPM) and airborne asbestos.

Diesel Particulate Matter (DPM) was identified as a TAC by the ARB in August 1998 (CARB,1998). DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities a metal found naturally in the environment as well as in manufactured products.

Exposure to DPM can have immediate health effects. DPM can have a range of health effects including irritation of eyes, throat, and lungs, causing headaches, lightheadedness, and nausea. Exposure to DPM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. Children, the elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. In California, DPM has been identified as a carcinogen.

Airborne Asbestos. Asbestos occurs naturally in ultramafic rock (which includes serpentine). When this material is disturbed in connection with construction, grading, quarrying, or surface mining operations, asbestos-containing dust can be generated. Asbestos is a known carcinogen. Exposure to asbestos can result in adverse health effects such as lung cancer, mesothelioma (cancer of the linings of the lungs and abdomen), and asbestosis (scarring of lung tissues that results in constricted breathing).

2.3.3.3 Greenhouse Gases

Carbon Dioxide (CO_2)

CO_2 is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO_2 is produced when an organic carbon compound (such as wood) or fossilized organic matter, (such as coal, oil, or natural gas) is burned in the presence of oxygen. CO_2 is removed from the atmosphere by CO_2 "sinks", such as seawater, ocean-dwelling plankton, forests, and grasslands. Under certain circumstances, however, these sinks can also be a source of CO_2. Whereas the biosphere and ocean achieve a natural balance of CO_2 production and absorption, humankind has altered the natural carbon cycle since the industrial revolution. Beginning in the mid-1700s, the burning of coal, oil, natural gas, and wood has increased globally. Prior to the industrial revolution, concentrations of CO_2 were stable between 275 and 285 (ppm). The National Oceanic and Atmospheric Administration (NOAA's) Earth System Research Laboratory indicates that global concentrations of CO_2 were 405.1 ppm in March 2016, an increase that matched the record jump observed in 2015 (NOAA 2017). The 6-year, 6-ppm surge in CO_2 between 2015 and 2017 is unprecedented in the observatory's 59-year record. And, it was a record fifth consecutive year that CO_2 rose by 2 ppm or greater. These concentrations of CO_2 far exceed the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores.

Methane (CH_4)

CH4 is a colorless, odorless, combustible, non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH4 is the main constituent of natural gas, a fossil fuel. CH4 is released when organic matter decomposes in low oxygen environments. Natural sources include decomposition processes generated by wetlands, swamps and marshes, termites, and oceans. Human sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals such as cattle, rice paddies, and buried waste in landfills. Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH4. Other anthropogenic sources include fossil fuel combustion and biomass burning.

Nitrous Oxide (N_2O)

N_2O is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas", and sometimes used as an anesthetic. N_2O is naturally produced in the oceans and in rainforests. Manmade sources of N_2O include agricultural fertilizers, nylon and nitric acid production, cars with catalytic converters, and the burning of organic matter. Concentrations of N_2O also began to rise at the beginning of the industrial revolution.

Chlorofluorocarbons (CFCs)

CFCs are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. In the 1970s, scientists discovered that CFCs destroy stratospheric ozone, leading to thinning of the Earth's protective ozone layer. Since then there has been an ongoing global effort to halt their production, which has been extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons (HFCs)

Hydrofluorocarbons (HFCs) are synthesized chemicals that are used as a substitute for CFCs. Out of all the GHGs, HFCs are one of three groups with the highest GWP. HFCs are synthesized for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons (PFCs)

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays can destroy the compounds only in the upper atmosphere. Consequently, PFCs have very long lifetimes – between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride (SF_6)

Sulfur hexafluoride (SF_6) is a manmade and extremely potent GHG. SF_6 is very persistent, with an atmospheric lifetime of more than a thousand years. Thus, a relatively small amount of SF_6 can have a significant long-term impact on global climate. SF_6 is used primarily by the electric power industry. Because of its inertness and dielectric properties, it is the industry's preferred gas for electrical insulation, current interruption, and arc quenching (to prevent fires) in the transmission and distribution of electricity. SF_6 is used extensively in high-voltage circuit breakers and switchgear, and in the magnesium metal casting industry.

2.3.3.4 Sensitive Receptors

Some population groups, such as children, the elderly, and acutely and chronically ill persons are considered more sensitive to air pollution than others. Sensitive receptor locations typically include residential areas, hospitals, elder-care facilities, rehabilitation centers, daycare centers, and parks. The Project site is in a rural area surrounded by agricultural fields. Sensitive receptors located within one mile of the Project site consist of a few scattered rural homes, there are no sensitive receptors within 1,500 feet of the Project site boundary.

2.3.3.5 Existing Local Ambient Air Quality

Existing levels of ambient air concentrations and historical trends and projections in the project area are best documented by measurements made by the ICAPCD and CARB. The closest most representative air monitoring station to the project site is the project site is the Niland Monitoring Station on English Road. However, the Niland Monitoring Station only monitors ozone and particulate matter that is 10 microns or less in diameter (PM_{10}). Thus, monitoring data from the Brawley Station for $PM_{2.5}$ is also included below. This was determined to be appropriate since the project area is only nonattainment for ozone, PM_{10} and $PM_{2.5}$. The most recent published data for the monitoring stations is presented in Table 3, which encompasses the years of 2013 through 2017.

Table 3: Existing Local Ambient Air Quality from 2013 – 2017

Pollutant	Averaging Time	Standard	2013	2014	2015	2016	2017
Ozone (O_3)	1-Hour	Maximum Concentration (ppm)	0.102	0.081	0.091	0.079	0.072
		Days > CAAQS (0.09 ppm)	1	0	0	0	0
	8-Hour	Maximum Concentration (ppm)[a]	0.083	0.075	0.074	0.066	0.061
		Days > NAAQS (0.07 ppm)	**5**	**2**	**5**	0	0
Particulate Matter (PM_{10})	24-Hour	Maximum Concentration (□g/m^3) - National	144	173	250	226	345
		Maximum Concentration (□g/m^3) - State	333	276	260	231	*
		Days > NAAQS (150 □g/m^3)	0	**6**	**6**	**6**	**4**
		Days > CAAQS (50 □g/m^3)	145	124	104	87	*
	Annual	State Annual Average (20 □g/m^3)	51.5	50.6	46.11	40.7	n/a
Particulate Matter [c] ($PM_{2.5}$)	24-Hour	Maximum Concentration (□g/m^3)	23.1	24.3	29.5	57.9	46.1
		Days > NAAQS (35 □g/m^3)	0	0	0	**6**	**3**
		National Std. 98th Percentile [b]	17	20	12	32	27
	Annual	National Annual (12.0 □g/m^3)	7.2	7.3	6.6	11.3	9.4

AAM – Annual Arithmetic Mean; CAAQS – California ambient air quality standards; g/m^3 – micrograms per cubic meter; NAAQS – National ambient air quality standards; ppm – parts per million; n/a – sufficient data not available to determine the value

*The estimated number of measured concentrations above national standards are shown in **bold**.*

Note: Ambient data for CO, NO_2, SO_2 and airborne lead are not included in this table since the entire Imperial County is currently in compliance with state and federal standards for these pollutants.

[a] The 8-hour ozone standard is attained when the fourth highest concentration in a year, averaged over 3 years, is less than or equal to the new national standard of 0.07 ppm. (Values listed in table represent midnight-to-midnight 24-hour averaged and exclude exceptional events.)

[b] Attainment condition for $PM_{2.5}$ is that the 3-year average of the 98th percentile of 24-hour concentrations at each monitor within an area must not exceed the standard.

[c] O_3 and PM_{10} data are from Niland Monitoring Station located at 7711 English Road, approximately 13 miles from the project site. $PM_{2.5}$ concentrations are not measured at Niland station; the listed data are from Brawley Monitoring Station located at 220 Main Street, about 4 miles southeast of Project site.

Source: CARB,2019, EPA 2019

3.0 IMPACTS AND MITIGATION MEASURES

3.1 THRESHOLDS OF SIGNIFICANCE

Based upon criteria presented in Appendix G of the California Environmental Quality Act (CEQA), a project would have a significant air quality impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under applicable federal or state ambient air quality standards;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The ICAPCD has also established significance thresholds based on the state CEQA significance criteria. adopted guidelines for implementation of CEQA in its *CEQA Air Quality Handbook* (ICAPCD, 2007, as updated December 12, 2017). The ICAPCD recommended thresholds of significance are discussed below. The thresholds are adopted for construction and operation emissions of criteria pollutants for residential, commercial and industrial projects.

3.1.1 Construction

For construction-related emissions, ICAPCD indicates the thresholds presented in Table 4. The ICAPCD guidelines in its CEQA Handbook states that the approach to evaluating construction emissions should be qualitative rather than quantitative. In any case, regardless of the size of the project, the standard mitigation measures for construction equipment and fugitive PM_{10} must be implemented at all construction sites. The implementation of discretionary mitigation measures, including those listed in Section 7.1 of the ICAPCD's Handbook, apply to those construction sites which are 5 acres or more for non-residential developments or 10 acres or more in size for residential developments that generate emissions above the levels in Table 4. The list of mitigation measures that would be implemented for the proposed Project (derived from Section 7.1 of the ICAPCD CEQA Guidelines) is provided in Section 5.1)

Table 4: ICAPCD Construction Thresholds of Significance

Pollutant	Threshold (lbs/day)
ROG	75
NOx	100
CO	550
PM_{10}	150

3.1.2 Operations

ICAPCD has determined in its CEQA Air Quality Handbook (ICAPCD 2017) that, because the operational phase of a proposed project has the potential of creating lasting or long-term impacts on air quality, it is

important that a proposed development evaluate the potential impacts carefully. Therefore, air quality analyses should compare all operational emissions of a project, including motor vehicle, area source, and stationary or point sources to the thresholds in Table 5. Table 5 provides general guidelines for determining the significance of impacts and the recommended type of environmental analysis required based on the total emissions that are expected from the operational phase of a project.

Table 5: ICAPCD Operations Thresholds of Significance

Pollutant	Tier I	Tier II
NOx and ROG	Less than 137 lbs/day	137 lbs/day and greater
PM_{10} and Sox	Less than 150 lbs/day	150 lbs/day and greater
CO and $PM_{2.5}$	Less than 550 lbs/day	550 lbs/day and greater
Level of Significance	Less than Significance	Significant Impact
Level of Analysis	Initial Study	Comprehensive Air Quality Analysis
Environmental Document	Negative Declaration	Mitigated ND or EIR

Source: CEQA Air Quality Handbook, ICAPCD, 2017

As shown, projects with emissions of criteria pollutants below Tier I may potentially have an adverse impact on local air quality but will be required to develop an initial study to determine the level of significance of potential impact. Tier II projects with a potential to emit criteria pollutants above the thresholds of Tier I are considered to have a significant impact on regional and local air quality. Tier II projects are required to implement all standard mitigation measures, as well as identify and implement all feasible discretionary mitigation measures.

Based upon criteria presented in Appendix G of the California Environmental Quality Act (CEQA), a project would have a significant air quality impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have an adverse effect on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The ICAPCD has not adopted threshold of significance for projects' GHG emissions. However, projects in the Imperial County use the SCAQMD's Interim Thresholds as follows:

- Industrial projects: 10,000 metric ton (MT) per year emissions of carbon monoxide equivalent (CO_2e)
- Residential, commercial and mixed-use projects: 3,000 MT CO2e per year

The proposed Project is considered a commercial development; as such, this analysis, compares the direct and indirect emissions from the project with the 3,000 MT threshold level.

3.1.3 Displaced Grid Electricity Emissions

Indirect sources of emissions can be of different forms. The proposed Project generates electricity from solar energy, a renewable source and as such, is an indirect source of reduction in fossil fuel-powered electricity generation. The proposed Project would provide a renewable energy resource that would displace generation from higher GHG emitting sources. There would be a small amount of indirect GHG emissions from the proposed Project water use.

4.0 METHODOLOGY

The proposed Project would result in both short-term and long-term emissions of air pollutants associated with construction and operations of the proposed Project. Construction emissions would include exhaust from the operation of conventional construction equipment, on-road emissions from employee vehicle trips and haul truck trips, fugitive dust as a result of grading and vehicle travel on paved and unpaved surfaces. Operational emissions would include four vehicle trips per day of full-time employees to commute to and from the project site, to control the site operation and equipment and perform limited maintenance of equipment.

Construction and operational emissions were estimated using the latest version of California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model utilizes widely accepted federal and state models for emission estimates and default data from sources such as USEPA AP-42 emission factors, California Air Resources Board (CARB) vehicle emission models, and studies from California agencies such as the California Energy Commission (CEC). The model quantifies direct emissions from construction and operations, as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The model was developed in collaboration with the air districts in California. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions.

4.1 CONSTRUCTION EMISSIONS

Construction emissions associated with the proposed project, including emissions associated with the operation of off-road equipment, haul-truck trips, on-road worker vehicle trips, and vehicle travel on paved and unpaved surfaces and fugitive dust from material handling activities were calculated using CalEEMod version 2016.3.2. Emissions modeling included emissions generated during site preparation, grading, trenching, construction of roads, transmission lines, and installation of electrical infrastructure, substations and solar array modules.

Modeling input data was based on anticipated construction schedule and phasing. Construction equipment and usage required for each phase were obtained using information provided by the applicant, or derived from similar projects, and default parameters contained in the model for the Project area (Imperial County). The exact construction schedule has not yet been identified however the construction duration for the 20 MW facility is assumed to be between 6 to 9 months. Table 6 includes the construction phasing and anticipated equipment used in each phase for the 20 MW facility.

Table 6: Construction Phasing and Anticipated Equipment

Phase (Duration)	Equipment Used			Daily Vehicle Trips	
	Type	Number	Hours/ day	Workers (LD Mix)	Trucks (HHDT)
1. Site Preparation	Forklifts	1	8		
(30 working days)	Generator Sets	2	3		
	Off-Highway Trucks	2	4		
	Rollers	1	8	30	25
	Rubber Tired Dozers	2	5		
	Trenchers	2	7		
	Tractors/Loaders/Backhoes	2	6		
2. Facility Installation	Cranes	1	4		
(110 working days)	Forklifts	2	8		
	Generator Sets	2	4		
	Off-Highway Trucks	2	4	50	30
	Other Construction Equipment	2	6		
	Tractors/Loaders/Backhoes	1	7		
	Welders	1	7		
3. Gen-Tie, Site Restoration	Cranes	1	4		
(20 working days)	Forklifts	2	6		
	Generator Sets	1	3	20	20
	Off-Highway Trucks	1	4		
	Tractors/Loaders/Backhoes	3	6		
	Welders	1	7		

Notes:
For the parameters that are not provided in the table (e.g., equipment horsepower and load factor, on-road vehicles trip lengths), CalEEMod defaults were used. Assumed 98% paved roads for workers and truck trips.

4.2 OPERATIONAL EMISSIONS

The Project requires minimal operations and maintenance activities and would not require presence of full-time employees. However, for estimation of operational emissions, it is conservatively assumed that for day-to-day inspection and minor maintenance, some employees would commute to the site. The annual operations are assumed to be as follows:

- For site inspection and minor repairs, up to 4 one-way worker trips per day would be generated.
- Routine maintenance activities would include panel washing, which is expected to occur four times annually over a total of 20 days. Panel washing activities are estimated to require additional daily trips of 4 workers and 6 haul trucks for transport of water during each event. Panel washing was assumed to require the use of two pressure washers operating 8 hours/day,

and 5 days/week. The default model generated trip lengths were used for workers commute and haul trucks.

Operational emissions associated with the proposed project were quantified using CalEEMod version 2016.3.2.

4.3 DISPLACED GRID ENERGY EMISSIONS

In addition to the direct and indirect emissions created from project construction and operation, the project's renewable electricity generation would create an indirect emissions reduction of GHGs. Operation of the proposed project would likely reduce or "offset" electricity-related emissions on the state-wide utility grid, which includes energy generated by traditional sources, such as natural gas and coal-fired plants. These emissions are often referred to as "displaced" or "avoided" emissions.

Displaced emissions from electricity production were modeled based on an estimated electricity generation rate of 112,910 MWh/year (for 25 MW facility), provided by the project proponent. Emission factors were derived from the U.S. EPA's *Emissions Generation Resource Integration Database* (eGRID; 2016) as well as CalEEMod for Imperial County. The lower estimated displaced emissions were used in this report. Emissions Calculations and assumptions and model output files are included in Appendix A of this report.

5.0 IMPACT ANALYSIS

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

Less Than Significant Impact. A project is conforming with applicable adopted plans if it complies with the applicable ICAPCD rules and regulations and emission control strategies in the applicable air quality attainment plans. The project would comply with the applicable rules and regulations, including the use of standard mitigation measures for construction equipment and fugitive PM_{10}.

Consistency with air quality plans is typically conducted based on a comparison of project-generated growth in employment, population, and vehicle miles traveled (VMT) within the region, which is used for development of the emissions inventories contained in the air quality plans. While the Project would contribute to energy supply, which is one factor of population growth, the proposed Project would not significantly increase employment or growth within the region. Moreover, development of the proposed Project would increase the amount of renewable energy and help California meet its Renewable Portfolio Standard (RPS).

Furthermore, the thresholds of significance, adopted by the air district (ICAPCD), determine compliance with the goals of attainment plans in the region. As such, emissions below the ICAPCD regional mass daily emissions thresholds presented in Tables 4 and 5 would not conflict with or obstruct implementation of the applicable air quality plans. As Tables 7 and 8 show, the emissions from proposed Project construction and operation are below the thresholds of significance; therefore, the proposed Project does not conflict with implementation of the ICAPCD applicable air quality plans. No mitigation is required.

Impact AQ-2	Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact. The Project implementation would generate emissions of criteria air pollutants during construction and operation. The estimated emissions from construction and operations of the Project are summarized in Tables 7 and 8. The detailed assumptions and calculations, as well as CalEEMod outputs are provided in Appendix A of this report.

Table 7: Unmitigated Construction Emissions Summary

Construction Phase	Pollutant Emission (pounds per day)					
	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	SO_2
1. Site Preparation	4.1	39.6	25.7	27.8	7.9	0.06
2. Facility Installation	3.4	30.4	25.0	27.6	4.0	0.06
3. Gen-Tie, Site Restoration	2.0	17.9	14.8	14.2	2.2	0.03
Peak Daily Emission	*4.1*	*39.6*	*25.7*	*27.8*	*7.9*	*0.06*
ICAPCD Significance Thresholds	*75*	*100*	*550*	*150*	--	--
Threshold Exceeded?	*No*	*No*	*No*	*No*	--	--

NA = Not applicable, no threshold

ICAPCD significance thresholds are based on maximum daily emissions.

Emission were quantified using CalEEMod, version 2016.3.2 using "general light industry" land use category and modifying default values, where applicable.

Model results and assumptions are provided in Appendix A.

As Table 7 shows, estimated unmitigated construction emissions for all pollutants are below ICAPCD significance thresholds.

Prior to construction, the construction contractor will perform recordkeeping of a construction equipment list. The equipment list will include the Make, Model, Horsepower, and actual hours of usage for off-road equipment. The equipment list(s) will be submitted periodically to the ICAPCD to perform a NOx analysis. The ICAPCD's NOx analysis will then be used to assure the Project has remained in compliance with the Less Than Significant Finding of this report. If the ICAPCD's NOx analysis indicates exceedances of thresholds, the Project would be mitigated per Policy 5.

The Project's operation is limited to inspection activities, conservatively assumed up to 4 employee vehicle trips per day, and panel cleaning events 4 times per year with 4 additional employees and 6 water truck trips per day. Operational emissions are summarized in Table 8. As shown, the Project emissions during operations of the facility would be well below the significance thresholds.

Table 8: Unmitigated Operational Emissions Summary

Activity	Pollutant Emission (pounds per day)				
	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Panel Washing	0.14	1.68	0.86	2.14	0. 26
Normal Maintenance	0.02	0.02	0.24	0.63	0.07
Peak Daily Emission (Total Operational)	*0.16*	*1.70*	*1.09*	*2.77*	*0.33*
ICAPCD Significance Thresholds	*137*	*137*	*550*	*150*	*550*
Threshold Exceeded?	*No*	*No*	*No*	*No*	*No*

ICAPCD significance thresholds are based on maximum daily emissions.

Emission were quantified using CalEEMod, version 2016.3.2 using "user defined industrial" category and modifying default values using project-specific data/assumptions, where available.

The data for PM_{10} and $PM_{2.5}$ emissions, include the standard mitigation for fugitive dust that is required for all projects in Imperial County.

Model results and assumptions are provided in Appendix A.

Decommissioning. The proposed Project is anticipated to operate a total of approximately 20 – 25 years. At the end of the Project site operational term, the applicant may determine that the Project site should be decommissioned and deconstructed, or it may seek an extension of its CUP. The emissions associated with decommissioning of the Project are not quantitatively estimated, as the extent of activities and emissions factors for equipment and vehicles at the time of decommissioning are unknown. The overall activity would be anticipated to be somewhat less than project construction, and the emissions from off-road and on-road equipment are expected to be much lower than those for the Project construction. However, without changes in fugitive dust control methods it is likely that fugitive dust emissions would be closer to those estimated for construction. Overall, similar to construction, emissions associated with decommissioning would be less than significant.

As presented above, the proposed Project would not violate any air quality standards or contribute substantially to an existing or projected air quality violation. The impact is less than significant, and no mitigation required; however, per requirements of ICAPCD, the standard mitigation measures would be implemented during construction and operation of the Project, including an Operational Dust Control Plan (ODCP) outlining strategies for controlling dust emissions during Project operations. The required ICAPCD mitigation measures (for all projects) are listed in Section 5.1 of this report.

Impact AQ-3 Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Some population groups, such as children, the elderly, and acutely and chronically ill persons are considered more sensitive to air pollution than others. Sensitive receptors locations typically include residential areas, hospitals, elder-care facilities, rehabilitation centers, daycare centers, and parks. The Project site is in a rural area surrounded by agricultural fields. Sensitive receptors located within one mile of the Project site consist of a few scattered rural homes, the nearest of which is located approximately 2,000 feet southwest of the Project site boundary.

Implementation of the proposed Project would not result in the long-term operation of any emission sources that would adversely affect nearby sensitive receptors. Short-term construction activities (6 to 9 months) could result in temporary increases in pollutant concentrations. Emissions of all criteria pollutants are below the ICAPCD thresholds and would not have any significant impact. The Project's emissions of toxic air pollutants would be minimal and would consist of DPM (diesel particulate matter) emissions during construction activities. The employee commuting to the site during project construction or operation would use gasoline-fueled vehicles.

In conclusion, because of the minimal emissions of DPM during the short-term Project construction (6 to 9 months), the distance from nearest sensitive receptor (2,000 feet), implementation of the Project would not expose sensitive receptors to substantial pollutant concentrations.

Fugitive Dust. During construction and operations activities, the Project would implement dust control measures as shown in Section 5.1, including an ODCP, to ensure receptors in the project vicinity would not be impacted by the Project's long-term dust emissions during operations.

Naturally Occurring Asbestos. Airborne asbestos is classified as a known human carcinogen and was identified by as a TAC by CARB in 1986. The California Geological Survey prepared maps and lists of the naturally occurring asbestos areas within California counties. According to the 2011 report, the proposed project location is not an area of naturally occurring asbestos (USGS 2011).

Impact AQ-4	**Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

No Impact. Short term Project construction occurs more than 1,200 feet from the nearest sensitive receptor in an agricultural rural set, therefore the odors from construction equipment would not affect sensitive receptors. Operation of the Project does not include any component with the potential to generate odorous emissions that could affect a substantial number of people. No impact would occur.

Impact AQ-5	**Would the project generate GHG emissions, either directly or indirectly, that may have an adverse effect on the environment?**

Beneficial Impact. The Project-related direct and indirect emissions of GHGs were estimated using the similar methods for quantification of criteria air pollutants. The estimated emissions are summarized in Table 9. Detailed assumptions and calculations, as well as CalEEMod outputs are provided in Appendix A of this report. Total GHG emissions from all phases of construction activities were amortized over the estimated 20-year life of the project and added to the annual operational emissions of GHGs. The Project would offset GHG emissions through renewable energy generation and thereby result in environmental benefits by lessening the impacts of global climate change, as such, the annual displaced GHG emissions were estimated to include all direct and indirect emissions associated with implementation of the Project. Project decommissioning emissions were not calculated as the equipment and fuel types that would exist 20 or more years in the future are unknown. Also as described above, it is anticipated that the decommissioning emissions would be lower than the construction emissions.

Table 9: Greenhouse Gas Emissions Summary

Emissions Source	GHG Emissions (Metric Tons CO_2e/year)
Construction Emissions – Amortized [1]	18.8
Operational Emissions – Facility site [2]	9.0
Displaced Emissions (from Project Operation) [3,4]	-65,165
Total Annual Emissions	-65,136
Significance Threshold [5]	3,000
Threshold Exceeded?	No

1. Total construction emissions amortized over project life of 20 years.
2. Includes direct and indirect emissions of project site operation and maintenance, not including the indirect displaced GHG emissions.
3. Estimation of emissions avoided due to displacement of fossil fuel powered electricity generation.
4. The CalEEMod value of carbon intensity factor for Imperial Irrigation District (IID) is used to estimate displaced GHG emissions.
5. In the absence of ICAPCD-adopted threshold for GHG emissions, the SCAQMD threshold of 3,000 MT/year for commercial projects is used. Calculations, assumptions and model outputs are provided in Appendix A

As Table 9 shows, the proposed Project's annual indirect GHG emissions from the displacement of fossil fuel fired electricity generation is significantly higher than the Project's annualized direct and indirect emissions sources, as such, the overall effect of the proposed Project is to reduce GHG emissions. Therefore, the proposed project would have a beneficial GHG emissions impact.

Impact AQ-6 **Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?**

Less Than Significant Impact. Currently, there are no federal, State, or local climate change or GHG emissions regulations that address the GHG emissions Project construction. The project operation will, there are a number of federal, State, and local plans and policies, and GHG emissions reduction strategies that are potentially applicable to the proposed project, either directly or indirectly. The project operation is consistent with the followings

- The Project is consistent with the AB 32 scoping plan strategies to increase the total amount of renewable energy sources consistent with the goal of the State's Renewable Portfolio Standard (RPS).
- The Project is consistent with the CARB's emission reduction strategy presented in the Scoping Plans. The 2008 Scoping Plan specifically addresses critical measures directed at emission sources that are included in the cap-and-trade program that are designed to achieve cost-effective emissions reductions while accelerating the necessary transition to the low-carbon economy.
- The proposed Project implementation will help California meet its Renewable Portfolio Standard (RPS) requirements.

The Project would help promote California's GHG policies by creating renewable energy resources and would not exceed applicable GHG screening levels. Therefore, the proposed Project would not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. Moreover, Projects that are consistent with applicable plan, policy, or regulation adopted to reduce GHG emissions are considered less than significant during construction, operation and reclamation.

5.1 MITIGATION MEASURES

As discussed in the ICAPCD CEQA Handbook, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for control of fugitive dust. In addition, the Handbook lists additional (discretionary) mitigation measures that may be warranted as feasible, to control fugitive dust and equipment exhaust emissions.

5.2 CONSTRUCTION

In compliance with the ICAPCD requirements, the following measures would be implemented during construction of the Project:

AQ-MM.1 **Regulation VIII (Fugitive Dust Control Measures)**. All construction sites, regardless of size, must comply with the requirements contained within Regulation VIII.

5.2.1 Standard Mitigation Measures for Fugitive Dust (PM10) Control

a. All disturbed areas, including Bulk Material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover.

b. All on-site and off-site unpaved roads would be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

c. All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day would be effectively stabilized and visible emission shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

d. The transport of Bulk Materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material.

e. All Track-Out or Carry-Out would be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an Urban area.

f. Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient amounts of water, chemical stabilizers or by sheltering or enclosing the operation and transfer line.

g. The construction of any new Unpaved Road is prohibited within any area with a population of 500 or more unless the road meets the definition of a Temporary Unpaved Road. Any temporary unpaved road shall be effectively stabilized, and visible emissions shall be limited to no greater than 20 opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

5.2.2 Discretionary Measures for Fugitive Dust (PM10) Control

For projects with construction site of 5 acres or more for non-residential developments, in order to provide a greater degree of PM_{10} reductions, above that required by Regulation VIII, the ICAPCD recommends the following:

a. Water exposed soil with adequate frequency for continued moist soil.

b. Replace ground cover in disturbed areas as quickly as possible.

c. Use automatic sprinkler system installed on all soil piles.

d. Limit vehicle speed for all construction vehicles to 15 miles per hour on any unpaved surface at the construction site.

e. Develop a trip reduction plan to achieve a 1.5 AVR for construction employees.

f. Implement a shuttle service to and from retail services and food establishments during lunch hours.

AQ-MM.2 Construction Equipment Control Measures

5.2.3 Standard Mitigation Measures for Equipment Exhaust Emissions Control

These include:

a. Use of equipment with alternative fueled or catalyst-equipped diesel engine, including for all off-road and portable diesel-powered equipment.

b. Minimize idling time either by shutting equipment off when not in use or limit the idling time to a maximum of 5 minutes.

c. Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the number of equipment in use.

d. Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

5.2.4 Enhanced Mitigation Measures for Construction Equipment

To help provide a greater degree of reduction of PM emissions from construction combustion equipment, ICAPCD recommends the following enhanced measures.

a. Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways.
b. Implement activity management (e.g., rescheduling activities to reduce short-term impacts).

5.3 OPERATION

5.3.1 Operational Dust Control Plan

To help reduce fugitive dust emissions from onsite unpaved roads and accumulation of small dunes during operations, an Operational Dust Control Plan (ODCP) would be prepared. The ODCP would include strategies for how dust emissions would be controlled and maintained during Project operations. The ODCP would be submitted to the ICAPCD for approval prior to the issuance of a Certificate of Occupancy.

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Wister Solar Project Imperial County, California

Biological Resources Technical Report

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Abbreviations

BSA	Biological Study Area
CCH	Consortium of California Herbaria
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
ESA	Endangered Species Act
GPS	Global Positioning System
IID	Imperial Irrigation District
km/hr	Kilometers per hour
MW	Megawatt
MBTA	Migratory Bird Treaty Act
MSL	Mean Sea Level
NEPA	National Environmental Policy Act
NPPA	Native Plant Protection AcT
NRCS	Natural Resources Conservation Service
PPA	Power Purchase Agreement
Project	Wister Solar Project
RWQCB	Regional Water Quality Control Board
USACE	United States Army Corps of Engineers
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirement

1.0 INTRODUCTION

This report is intended to document the biological resources that are associated with the Wister Solar Project (Project) in Imperial County, California (refer to Appendix A, Figure 1). The surveys and discussions presented in this report were conducted/prepared to support regulatory agency permitting and California Environmental Quality Act (CEQA) documentation. Surveys were conducted within the approximately 123-acre Project site and a 300-ft buffer (where accessible), defined as the Biological Study Area (BSA) (refer to Appendix A, Figure 1).

1.1 PURPOSE OF THE REPORT

The goal of this report is to document the current environmental conditions that occur within the BSA. This document will provide an emphasis on special-status plant and wildlife species, wildlife corridors, and special-status/sensitive natural communities, and in addition, evaluate the potential for these species to occur within the BSA.

1.2 PROJECT LOCATION

The Project is situated on Assessor's Parcel No. 003-240-001 within northern Imperial County, California, approximately two to three miles northeast of the community of Niland, approximately five miles east of the Salton Sea, and 0.5 miles southwest of the Coachella Canal (Appendix A, Figure 1). It is situated in Township 10 South, Range 14 East, Section 27 of the U.S. Geological Survey (USGS) Wister 7.5-minute topographic quadrangle. The BSA consists of a relatively undeveloped, square parcel of land with its southwest corner near the intersection of Weist and Wilkins Roads (Appendix A, Figure 2). The unpaved Gas Line Road runs north/south, relatively parallel inside the eastern Project boundary. The majority of the BSA is undisturbed with exception of the aforementioned Gas Line Road and an approximately five-acre area of previously graded land in the northwest portion of the site, adjacent to the western Project boundary. There is a transmission line extending from outside the northern boundary to outside the eastern Project boundary with an associated unpaved access road.

1.3 PROJECT DESCRIPTION

Orni 33 LLC., Inc. (Client) is proposing to construct, operate, and maintain a 20-Megawatt (MW) photovoltaic solar farm on the approximately 123-acre Project site. The project location is within a 640-acre Section (T10S, R14E, Section 27) owned by the Client. The Client is developing the Wister Solar Energy Facility in order to reasonably maximize the Project's generating capacity, taking into account land and environmental constraints. A Power Purchase Agreement (PPA) for 20-MW to San Diego Gas & Electric has been secured by the Client.

2.0 METHODOLOGIES

Stantec conducted a habitat assessment and biological resource survey within the BSA on January 30, 2019. This investigation included a reconnaissance-level survey, a non-protocol survey to detect the presence of special-status plant and wildlife species, and a non-protocol avian survey to detect the presence of listed songbirds. The survey was designed to encompass all habitat and terrain types present within the BSA. Activities were conducted throughout the BSA via vehicle or on-foot where accessible based on terrain and vegetative cover. Literature review and survey details are described in detail below.

2.1 LITERATURE REVIEW

A literature search focused on the BSA was conducted prior to field surveys. A search of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) was conducted for the Wister 7.5-minute topographic quadrangle to determine special-status plants, wildlife, and vegetation communities that have been documented within the vicinity of the BSA (CDFW, 2019a). The following eight adjacent quadrangles were also included in the database search to encompass potential occurrences of special-status species in the region surrounding the BSA:

- Frink NW
- Frink NE;
- Iris Pass;
- Frink;
- Iris Wash;
- Obsidian Butte;
- Niland; and
- Iris

Additional data regarding the potential occurrence of special-status species and policies relating to these special- status natural resources were gathered from the following sources:

- State and Federally Listed Endangered and Threatened Animals of California (CDFW, 2018b); Special Animals List (CDFW, 2018c);
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW, 2018d);
- Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2019);
- California Sensitive Natural Communities (CDFW, 2018e); and Consortium of California Herbaria (CCH, 2018).
- Flat Tailed Horned Lizard Survey. Barrett's Biological Surveys, August 2018.

2.2 BIOLOGICAL SURVEYS AND HABITAT ASSESSMENTS

2.2.1 Site Reconnaissance and Wildlife Surveys

In order to document the existing biological resources that are present in and adjacent to the BSA, on January 30, 2019, Stantec conducted a habitat assessment and reconnaissance-level survey, which included focused non-protocol surveys for special-status plant and wildlife species. The primary goals of the reconnaissance survey were to identify and assess habitat that may be capable of supporting special-status wildlife species and to document the presence/absence of special-status biological resources.

The BSA was investigated via vehicle and on-foot by experienced field biologists. Biologists conducted the survey by driving throughout the BSA and walking meandering transects through representative areas at an average pace of approximately 1.5 kilometers per hour (km/hr) while visually searching and listening for wildlife songs, calls, or other signs. Biologists ensured that all habitat and topographic conditions were encompassed during the walking surveys. Surveying was halted periodically to listen for wildlife and to identify, record, or enumerate any detected species. Terrestrial insects and other invertebrates were searched for on flowers and leaves, under loose bark, and under stones and logs on the ground throughout the BSA. Randomly selected areas within appropriate micro habitats (e.g., leaf litter, woody debris piles, etc.) were hand raked or visually inspected to determine the presence/absence of gastropods, reptiles, small mammals, and amphibians. Species present were identified and recorded through direct visual observation, sound, or their sign (e.g., scat, tracks, etc.) and all potential refugia sites searched were returned to their original state upon completion of inspection. Species identifications conform to the most up-to-date field guides and technical literature.

To the extent possible, surveys were conducted during a season and time of day where migratory birds were expected to be present, resident bird species were nesting and fledging, small mammals were active and detectable visually or by sign, and above-ground amphibian and reptile movement would generally be detectable. However, it should be noted that some wildlife species and/or individuals may have been difficult to detect due to their elusive nature, cryptic morphology, or nocturnal behavior. Surveys were conducted during daylight hours when temperatures were such that reptiles and other wildlife would be active (i.e., between 75-95° Fahrenheit).

All plant species identified during the survey are listed in Table 2, and a list of wildlife observed within the BSA is presented in Table 3. Known and potential occurrences of special status plant taxa are discussed in Table 6, and known and potential occurrences of special status wildlife species are discussed in Table 7.

2.2.2 Vegetation Mapping

Vegetation descriptions and names are based on Sawyer et al. (2009) and have been defined at least to the alliance level. Vegetation maps were prepared by recording tentative vegetation type boundaries over recent aerial photograph base maps using the Esri® Collector for ArcGIS app on an Apple® iPad® coupled with a Bad Elf® GNSS Surveyor sub-meter external global positioning system (GPS) unit. Mapping was further refined in the office using ArcGIS (version 10.4) with aerial photograph base maps with an accuracy of one foot. Most boundaries shown on the maps are accurate within approximately three feet; however, boundaries between some vegetation types are less precise due to difficulties interpreting aerial imagery and accessing stands of vegetation. Vegetation communities are discussed further in Section 4.2 and are depicted in Figure 2 included in Appendix A.

Vegetation communities can overlap in many characteristics and over time may shift from one community type to another. Note also that all vegetation maps and descriptions are subject to variability for the following reasons:

- In some cases, vegetation boundaries result from distinct events, such as wildfire or flooding, but vegetation types usually tend to intergrade on the landscape, without precise boundaries between them. Even distinct boundaries caused by fire or flood can be disguised after years of post-disturbance succession. Mapped boundaries represent best professional judgment, but usually should not be interpreted as literal delineations between sharply defined vegetation types.
- Natural vegetation tends to exist in generally recognizable types, but also may vary over time and geographic region. Written descriptions cannot reflect all local or regional variation. Many (perhaps most) stands of natural vegetation do not strictly fit into any named type. Therefore, a mapped unit is given the best name available in the classification system being used, but this name does not imply that the vegetation unambiguously matches written descriptions.
- Vegetation tends to be patchy. Small patches of one named type are often included within larger stands mapped as units of another type. For this Study Area, the minimum mapping unit was approximately three feet, and smaller inclusions are described in the text but are not visible on the maps.

2.2.3 Jurisdictional Delineation

Prior to performing the general biological evaluation, Stantec conducted a formal jurisdictional waters delineation on April 12, 2018, per US Army Corps of Engineers (USACE). During that survey, the BSA was evaluated for potential wetlands and/or waters subject to federal and/or state jurisdiction pursuant to Section 404 and 401 of the Clean Water Act (CWA). The jurisdictional assessment also included an investigation of areas that could be jurisdictional pursuant to Section 1600 et seq. of the California Fish and Game Code. Prior to conducting the jurisdictional delineation, Stantec reviewed current and historic aerial imagery, topographic maps, soil maps (USDA, 2018), local and state hydric soils lists, and the National Wetlands Inventory (USFWS, 2006) to evaluate the potential active channels and wetland features that occur within the BSA. During the field assessment, hydrologic features were mapped using the same data collection equipment described above for vegetation mapping. Field data were further manipulated in the office using GIS and total jurisdictional area for each regulatory jurisdiction calculated. The results of the jurisdictional survey were presented in the Wister Solar Project Preliminary Jurisdictional Waters/Wetlands Delineation Report, dated June 12, 2018 and revised January 27, 2020, are summarized in Section 4.4, and depicted in Figure 3 included in Appendix A.

3.0 REGULATORY FRAMEWORK

3.1 FEDERAL REGULATIONS

3.1.1 Federal Endangered Species Act

Federal Endangered Species Act (ESA) provisions protect federally listed threatened and endangered species and their habitats from unlawful take and ensure that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Under the ESA, "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The U.S. Fish & Wildlife Service's (USFWS) regulations define harm to mean "an act which actually kills or injures wild-life." Such an act "may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR § 17.3).

Critical habitat is defined in Section 3(5)(A) of the ESA as "(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features (I) essential to the conservation of the species, and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species upon a determination by the Secretary of Commerce or the Secretary of the Interior (Secretary) that such areas are essential for the conservation of the species."

The effects analyses for designated critical habitat must consider the role of the critical habitat in both the continued survival and the eventual recovery (i.e., the conservation) of the species in question, consistent with the Ninth Circuit juridical opinion, Gifford Pinchot Task Force v. USFWS. Activities that may result in "take" of individuals are regulated by the USFWS. The USFWS produced an updated list of candidate species December 6, 2007 (72 FR 69034). Candidate species are not afforded any legal protection under ESA; however, candidate species typically receive special attention from Federal and State agencies during the environmental review process.

3.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter, or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. "Take" is defined as possession or destruction of migratory birds, their nests or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA. The MBTA prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary. This act encompasses whole birds, parts of birds, and bird nests and eggs.

3.1.3 Bald and Golden Eagle Protection Act of 1940 (16 USC 668)

The Bald Eagle Protection Act of 1940 (16 U.S.C. 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).

The USFWS is the primary federal authority charged with the management of golden eagles in the United States. A permit for take of golden eagles, including take from disturbance such as loss of foraging habitat, may be required if this project affects such resources. USFWS guidance on the applicability of current Eagle Act statutes and mitigation is currently under review. On November 10, 2009, the USFWS implemented new rules (74 FR 46835) governing the “take” of golden and bald eagles. The new rules were released under the existing Bald and Golden Eagle Act which has been the primary regulation protection 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. The definition of disturb (72 FR 31132) includes interfering with normal breeding, feeding, or sheltering behavior to the degree that it causes or is likely to cause decreased productivity or nest abandonment. If a permit is required, due to the current uncertainty on the status of golden eagle populations in western United States, it is expected permits would only be issued for safety emergencies or if conservation measures implemented in accordance with a permit would result in a reduction of ongoing take or a net take of zero.

3.1.4 Federally Regulated Habitats

Areas meeting the regulatory definition of “Waters of the U.S.” (Jurisdictional Waters) are subject to the jurisdiction of the United States Army Corps of Engineers (USACE) under provisions of Section 404 of the Clean Water Act (CWA) (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as “Waters of the U.S.,” tributaries of waters otherwise defined as “Waters of the U.S.,” the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to “Waters of the U.S.” (33 CFR, Part 328, Section 328.3). Wetlands on non-agricultural lands are identified using the Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987). The Project Area falls within the South Pacific Division of the USACE and is under the jurisdiction of the Los Angeles District.

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit would be effective in the absence of State water quality certification pursuant to Section 401 of the CWA. As a part of the

permit process, the USACE works directly with the USFWS to assess potential project impacts on biological resources.

3.1.5 National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) requires all Federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and utilize public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA with other planning requirements and prepare appropriate NEPA documents to facilitate better environmental decision making. NEPA requires Federal agencies to review and comment on Federal agency environmental plans/documents when the agency has jurisdiction by law or special expertise with respect to any environmental impacts involved (42 U.S.C. 4321- 4327) (40 CFR 1500-1508).

3.2 STATE REGULATIONS

3.2.1 California Environmental Quality Act

CEQA establishes State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by public agencies. Regulations for implementation are found in the State CEQA Guidelines published by the Resources Agency. These guidelines establish an overall process for the environmental evaluation of projects.

3.2.2 California Endangered Species Act

Provisions of the California Endangered Species Act protect State-listed Threatened and Endangered species. The CDFW regulates activities that may result in “take” of individuals (“take” means “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”). Habitat degradation or modification is not expressly included in the definition of “take” under the California Fish and Game Code. Additionally, the California Fish and Game Code contains lists of vertebrate species designated as “fully protected” (California Fish & Game Code §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed.

In addition to Federal and State-listed species, the CDFW also has produced a list of Species of Special Concern to serve as a “watch list.” Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Species of Special Concern may receive special attention during environmental review, but they do not have statutory protection.

Birds of prey are protected in California under the State Fish and Game Code. Section 3503.5 states it is “unlawful to take, possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto.” Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment.

Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Under Sections 3503 and 3503.5 of the State Fish and Game Code, activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory nongame 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 Fish and Game Code Section 3800 are prohibited.

3.2.3 Native Plant Protection Act (Fish & Game Code 1900-1913)

California's Native Plant Protection Act (NPPA) requires all State agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. Provisions of 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 CDFW to salvage listed plant species that would otherwise be destroyed. The Applicant is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

3.2.4 Section 3503 & 3503.5 of the Fish and Game Code

Under these sections of the Fish and Game Code, the Applicant is not allowed to conduct 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 Fish and Game Code Section 3800.

3.2.5 Porter-Cologne Water Quality Control Act

Regional water quality control boards (RWQCBs) regulate the "discharge of waste" to "waters of the State." All projects proposing to discharge waste that could affect waters of the State must file a waste discharge report with the appropriate regional board. The board responds to the report by issuing waste discharge requirements (WDR) or by waiving WDRs for that project discharge. Both of the terms "discharge of waste" and "waters of the State" are broadly defined such that discharges of waste include fill, any material resulting from human activity, or any other "discharge." Isolated wetlands within California, which are no longer considered "waters of the United States" as defined by Section 404 of the CWA, are addressed under the Porter-Cologne Act. The Project Area falls under the jurisdiction of the Colorado River RWQCB.

3.2.6 State-Regulated Habitats

The State Water Resources Control Board is the State agency (together with the RWQCBs) charged with implementing water quality certification in California.

The CDFW extends the definition of stream to include "intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (USGS-defined), and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered

streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife" (CDFW, 1994).

Activities that result in the diversion or obstruction of the natural flow of a stream; or which substantially change its bed, channel, or bank; or which utilize any materials (including vegetation) from the streambed, may require that the project Applicant enter into a Streambed Alteration Agreement with the CDFW.

3.3 LOCAL REGULATIONS

3.3.1 Imperial County General Plan – Conservation and Open Space Element

The Conservation and Open Space Element of the Imperial County General Plan contains policies and programs that are designed to protect and conserve environmental resources in the County while encouraging economic development and growth. Resources covered under the Conservation and Open Space Element consist of the following: biological resources, cultural resources, geology and soils, mineral resources, regional aesthetics, air quality and climate change, and open space and recreation.

The Goals and Objectives relative to natural resources that apply to the Project are as follows:

Conservation of Environmental Resources for Future Generations

Goal 1 Environmental resources shall be conserved for future generations by minimizing environmental impacts in all land use decisions and educating the public on their value.

- **Objective 1.1** Encourage uses and activities that are compatible with the fragile desert environment and foster conservation.
- **Objective 1.2** Coordinate the acquisition, designation, and management of important natural and cultural resource areas in Imperial County with other governmental agencies as appropriate.
- **Objective 1.4** Ensure the conservation and management of the County's natural and cultural resources.
- **Objective 1.6** Promote the conservation of ecological sites and preservation of cultural resource sites through scientific investigation and public education.

Conservation of Biological Resources

Goal 2 The County will integrate programmatic strategies for the conservation of critical habitats to manage their integrity, function, productivity, and long-term viability.

- **Objective 2.1** Designate critical habitats for Federally and State-listed species.
- **Objective 2.2** Develop management programs, including preservation of habitat for flat-tailed horned lizard, desert pupfish, and burrowing owl.
- **Objective 2.4** Use the CEQA and NEPA process to identify, conserve, and restore sensitive vegetation and wildlife resources.

- **Objective 2.6** Attempt to identify, reduce, and eliminate all forms of pollution; including air, noise, soil, and water.

The Policies and Programs relative to natural resources that apply to the Project are as follows:

Biological Resource Conservation

Policy – Provide a framework for the conservation and enhancement of natural and created open space which provides wildlife habitat values.

Programs

- Identify Resource Areas to conserve and enhance native vegetation and wildlife. These areas include agency designated sensitive habitats with the USFWS, Bureau of Land Management Areas of Critical Environmental Concern, and CDFW. These designated lands are designed for the protection and perpetuation of rare, endangered, and threatened species and areas important for scientific study.
- Projects within or in the vicinity of a Resource Area should be designed to minimize adverse impacts on the biological resources it was created to protect.
- Develop an environmental mitigation program that protects and restores Salton Sea wildlife habitats as offsets to biological disturbances identified through the CEQA review process for development projects. The program would allow the County and/or Salton Sea Joint Powers Authority to restore habitat through financing mechanisms including land banks and/or direct financial contributions from the developers to mitigate their impacts.
- Protect riparian habitat and other types of wetlands from loss or modification by dedicating open space easements with adequate buffer zones, and by other means to avoid impacts from adjacent land uses. Road crossings or other disturbances of riparian habitat should be minimized and only allowed when alternatives have been considered and determined infeasible.
- Preserve existing California fan palms in natural settings and other individual specimen trees which contribute to the community character and provide wildlife habitat.
- Preserve and encourage the open space designation of wildlife corridors which are essential to the long-term viability of wildlife populations.
- Integrate open space dedications in private developments with surrounding uses to maximize a functional open space/recreation and wildlife management system.

Policy – Landscaping should be required in all developments to prevent erosion on graded sites and, if the area is contiguous with undisturbed wildlife habitat, the plan should include revegetation with native plant species.

Programs

- Revegetation plans shall be submitted and approved by the Imperial County Planning and Development Services Department and relevant resource agencies for the mitigation of sensitive habitat lost, and for disturbed areas created by roads or installation of facilities adjacent to native habitat. Such plans shall mitigate for the loss of sensitive habitat and habitat value based on a ratio consistent with accepted policy, as recommended by the State and Federal resource agencies.

3.4 OTHER APPLICABLE REGULATIONS, PLANS, AND STANDARDS

3.4.1 California Native Plant Society Rare Plant Program

The mission of the California Native Plant Society (CNPS) Rare Plant Program is to develop current, accurate information on the distribution, ecology, and conservation status of California's rare and endangered plants, and to use this information to promote science-based plant conservation in California. Once a species has been identified as being of potential conservation concern, it is put through an extensive review process. Once a species has gone through the review process, information on all aspects of the species (e.g., listing status, habitat, distribution, threats, etc.) are entered into the online CNPS Inventory and given a California Rare Plant Rank (CRPR). In 2011, the CNPS officially changed the name "CNPS List" to "CRPR." The Program currently recognizes more than 1,600 plant taxa (species, subspecies and varieties) as rare or endangered in California.

Vascular plants listed as rare or endangered by the CNPS, but which might not have a designated status under State endangered species legislation, are defined by the following CRPR:

- CRPR 1A - Plants considered by the CNPS to be extinct in California
- CRPR 1B - Plants rare, threatened, or endangered in California and elsewhere
- CRPR 2 - Plants rare, threatened, or endangered in California, but more numerous elsewhere
- CRPR 3 - Plants about which we need more information – a review list
- CRPR 4 - Plants of limited distribution – a watch list

In addition to the CRPR designations above, the CNPS adds a Threat Rank as an extension added onto the CRPR and designates the level of endangerment by a 1 to 3 ranking, with 1 being the most endangered and 3 being the least endangered and are described as follows:

- 0.1 – Seriously threatened in California (high degree/immediacy of threat)
- 0.2 – Fairly threatened in California (moderate degree/immediacy of threat)
- 0.3 – Not very threatened in California (low degree/immediacy of threats or no current threats known.

4.0 EXISTING CONDITIONS

4.1 SETTING

As depicted in Figures 1 and 2, the BSA is located in the northern portion of Imperial County, approximately two- miles northeast of the community of Niland, approximately five-miles east of the Salton Sea, and 0.5-mile southwest of the Coachella Canal. It is situated within Section 27 of Township 10S, Range 14E of the Wister U.S. Geological Survey (USGS) 7.5-minute quadrangle. Positioned within the Imperial Valley at the base of the foothills of the Chocolate Mountains to the northeast, the BSA is relatively flat, though there are slopes slightly from northeast to southwest with elevations ranging from approximately 20 feet above mean sea level (MSL) to approximately 30 feet below MSL.

The BSA is considered “Recreational Open Space” by Imperial County. It is bordered largely by open space to the north, east, and south, with agricultural lands (orchards) occurring to the west and northwest. An existing solar generating facility occurs approximately 0.5 mile south and a County landfill is located to the east of the BSA. While it is largely undeveloped, the unpaved Gas Line Road passes roughly parallel to the eastern boundary of the BSA and a transmission line and associated unpaved access road run from outside the eastern boundary from north to south. The East Highline Canal, an Imperial Irrigation District (IID) water delivery conveyance passes through the extreme southwestern corner of the BSA.

The region experiences a desert climate characterized by hot, dry summers and warm winters. Average annual temperatures range from 42 degrees Fahrenheit in December to 107 degrees Fahrenheit in July, and average annual precipitation measures 2.87 inches (US Climate Data, 2018).

4.2 VEGETATION AND LAND COVERS

Biological resources observed within the BSA during the field survey were comprised primarily of common plant species and vegetation communities characteristic of the Colorado Desert habitat prevalent throughout Imperial County. Habitat conditions within the BSA were noted to be of generally good quality, with well-established communities comprised primarily of native shrub and tree species. Within the BSA, Stantec biologists mapped three plant communities defined by Sawyer et al. (2009) and one additional land cover type. These are described in Section 4.2.1 below, summarized in Table 1, and depicted in Figure 2 included in Appendix A. Small, localized areas occupied by other plant communities were also observed within the BSA; however, the areas were less than the minimum mapping unit dictated by the size of the survey area and thus, were not mapped.

4.2.1 Vegetation Communities and Land Cover Types

4.2.1.1 Vegetation Communities

Creosote Bush – White Bursage Scrub

This is the primary land cover type occurring throughout most of the BSA. Creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) are the co-dominant species, though vegetative cover throughout the BSA. Other shrub species present within this community include a number of saltbush species (*Atriplex* spp.*)* and desert thorn (*Lyceum brevipes*). The sparse understory consists of native and non-native herbaceous species such as desert dandelion (*Malacothrix glabrata*) and desert plantain (*Plantago ovata*) and non-native grasses, primarily bromes (*Bromus* spp.) and Mediterranean grass (*Schismus barbatus*).

Arrow Weed Thickets

This is the dominant vegetation along the small section of the East Highline Canal in the southwestern corner of the BSA. Arrow weed thickets within the BSA are dominated by arrow weed (*Pluchea sericea*). Other species such as cattails (*Typha* spp.), common reed (*Phragmites australis*), and saltcedar (*Tamarix ramosissima*) are also present, but much less common. Arrow weed thickets are recognized by CDFW as a sensitive vegetation type.

Blue Palo Verde – Ironwood Woodland

This vegetation community occurs along the margins of some of the larger drainage features within the BSA, particularly in the southeast portion of the site. This community is dominated by desert ironwood (*Olneya tesota*) trees, though a few blue palo verde (*Parkinsonia florida*) and honey mesquite (*Prosopis glandulosa*) trees are sparsely interspersed throughout the community. Understory consists of white bursage, creosote bush, and brome grasses.

Tamarisk Thickets

This vegetation community occurs along the small section of the East Highline Canal in the southwestern corner of the BSA. It is comprised of a monoculture of mature tamarisk trees (*Tamarix ramosissima*) up to approximately 40 feet tall with no appreciable understory.

4.2.1.2 Other Land Cover Types

Disturbed/Developed

This land cover type was used to map portions of the BSA that are developed, primarily unpaved roadways. Where vegetated, these areas are generally composed of scarce occurrences of native and non-native herbaceous species common to the vegetation communities through which they pass.

Agriculture

This land cover type was used to map areas of active agriculture. Within the BSA, areas mapped as Agriculture were limited to citrus farms located within and adjacent to the northwest corner of the BSA.

Table 1 Vegetation Communities and Land Cover Types Occurring within the BSA and Impacts

Vegetation Community/Land Cover Type	Acreage within BSA	Acreage of Permanent Project Impacts	Acreage of Temporary Project Impacts
Creosote bush – White Bursage Scrub	279.83	115.30	0.14
Arrow Weed Thickets	0.41	--	--
Blue Palo Verde – Iron Woodland	9.87	0.19	0.00
Tamarisk Thickets	0.29	--	--
Disturbed/Developed	21.80	4.95	2.05
Agriculture	7.92	--	--
Total	**320.12**	**120.44**	**2.19**

4.2.2 Common Plant Species Observed

Plants observed during the January 2019 reconnaissance-level survey, were recorded; however, a focused, floristic- level survey was not conducted. The survey resulted in the documentation of 38 species of native and non-native plants within the BSA, a list of which is provided in Table 2, below.

Table 2 Plant Species Observed within the BSA

Scientific Name	Common Name
Acacia greggii	cat's claw
Acmispon sp.	--
Ambrosia dumosa	white bursage
Astragalus sp.	--
Atriplex canescens	fourwing saltbush
Atriplex hymenelytra	desert holly
Atriplex lentiformis	Quailbush
*Brassica tournefortii***	Sahara mustard
Chaenactis stevioides	Esteve pincushion
Chenopodium sp.	--
Chorizanthe rigida	Devil's spineflower
Chylismia claviformis	Primrose

Scientific Name	Common Name
Cryptantha sp.	--
Cylindropuntia sp.	Cholla
Datura stramonium	Jimson weed
Distichlis spicata	Saltgrass
Encelia farinose	Brittlebush
Eriogonum sp.	Buckwheat
Erodium sp.	--
Galium angustifolium	narrow-leaved bedstraw
Hilaria rigida	big galleta
Larrea tridentata	creosote bush
Lycium brevipes	desert thorn
Malacothrix glabrata	desert dandelion
*Melilotus officinalis***	sweet clover
Olneya tesota	Ironwood
Palafoxia arida var. arida	desert needle
Parkinsonia florida	blue palo verde
*Phoenix dactylifera***	date palm
*Phragmites australis***	common reed
Plantago ovata	desert plantain
*Polypogon monspeliensis***	rabbit's foot grass
Prosopis glandulosa	honey mesquite
Psorothamnus fremontii	indigo bush
*Schismus barbatus***	old han schismus
Sesuvium verrucosum	western sea purslane
*Sisymbrium irio***	London rocket
Suaeda nigra	bush seepweed
*Tamarix ramosissima***	salt cedar

* No special-status plant species were observed in the BSA

** Non-native Species

4.3 COMMON WILDLIFE

4.3.1 Invertebrates and Gastropods

While a focused survey for insects was not conducted within the BSA during the January 2019 survey event; randomly selected areas within the appropriate micro habitats (e.g., leaf litter, woody debris piles, etc.) were hand raked or visually inspected to determine the presence/absence of invertebrates and gastropods, as a variety of common insects are known to occur in the area. Conditions in the BSA provide a suite of microhabitat variations for a wide variety of terrestrial insects and other invertebrates.

As in all ecological systems, invertebrates in the BSA 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; they provide important pollination vectors for numerous plant species; they act as efficient components in controlling pest populations; and they support the naturally occurring maintenance of an area by consuming detritus and contributing to necessary soil nutrients. The hand raked and visually inspected areas of the BSA detected a wide variety of common and non-native invertebrates. Some of the orders identified in the BSA included beetles (*Coleoptera* sp.), flies (*Diptera* sp.), grasshoppers (*Orthoptera* sp), moths and butterflies (*Lepidoptera* sp.), wasps, bees, and ants (*Hymenoptera* sp.), and dragonflies and damselflies (*Odonata* sp.),.

4.3.2 Fish

Though ephemeral drainages occur throughout much of the BSA, these remain dry under normal circumstances and would not support aquatic species. IID irrigation canals such as the East Highline Canal, which traverses the extreme southwestern corner of the BSA, are known to support fish species including channel catfish (*Ictalurus punctatus*), bass (*Micropterus* sp.), and sunfish (*Lepomis* sp.).

4.3.3 Amphibians

According to the Imperial County General Plan Environmental Impact Report (County of Imperial, 1993), 31 species of amphibians are known to occur within the County. Amphibians often require a source of standing or flowing water to complete their life cycle. However, some terrestrial species can survive in drier areas by remaining in moist environments or by burrowing into the soil. Downed logs, bark, and other woody material in various stages of decay (often referred to as coarse woody debris), resources which are largely absent from the BSA, likely provide shelter and feeding sites for a variety of wildlife, including amphibians and reptiles (Maser and Trappe, 1984; Aubry et al., 1988).

These species are highly cryptic and often difficult to detect. Amphibians all require aquatic habitat for all or part of their life cycle, which may only be present within the BSA (except for the East Highline Canal) for a short period time during and immediately after substantial rain events. Therefore, amphibians are not expected to occur throughout the vast majority of the BSA. Common species known to occur in the region associated with more permanent sources of water provided by irrigation infrastructure include the Rio Grande leopard frog (*Lithobates berlandieri*), American bullfrog (*L. catesbeianus*), and Great Plains toad (*Anaxyrus cognatus*).

4.3.4 Reptiles

The number and type of reptile species that may occur at a given site is related to a number of biotic and abiotic features. These include the diversity of plant communities, substrate, soil type, and presence of refugia such as rock piles, boulders, and native debris. Weather conditions were favorable during the survey for reptile activity.

No reptile species were observed in the BSA at the time of the reconnaissance survey. Although not observed, several common reptiles known to occur in the region are likely to occur in the BSA. Many

reptile species, even if present, are difficult to detect because they are cryptic and their life history characteristics (e.g., foraging, thermoregulatory behavior, fossorial nature, camouflage etc.) limit their ability to be observed during most surveys. Further, many species are only active within relatively narrow thermal limits, avoiding both cold and hot conditions, and most take refuge in microhabitats that are not directly visible to the casual observer, such as rodent burrows, in crevices, under rocks and boards, and in dense vegetation where they are protected from unsuitable environmental conditions and predators (USACE and CDFG, 2010). In some cases, they are only observed when flushed from their refugia. Although these species were not detected, suitable habitat conditions for a number of common reptiles were observed within the BSA, including sidewinder (*Crotalus cerastes*), Sonoran gopher snake (*Pituophis catenifer affinis*), western whiptail (*Aspidoscelis tigris*), desert iguana (*Dipsosaurus dorsalis*), and zebra-tailed lizard (*Callisaurus draconoides*).

4.3.5 Birds

Birds were identified by sight and sound and were infrequently observed throughout the BSA. The most common bird species observed was sagebrush sparrow (*Artemisiospiza nevadensis*), though mourning dove (*Zenaida macroura*) and flyovers by turkey vulture (*Cathartes aura*) and American kestrel (*Falco sparverius)* were also noted. It is possible that many other birds use the BSA at different periods, either as wintering habitat, seasonal breeding, or as occasional migrants. Although not detected in the BSA suitable habitat conditions for a number of common birds known to occur in the region were observed at the time of the survey. These including greater roadrunner (*Geococcyx californianus*), ladder-backed woodpecker (*Dryobates scalaris*), Gambel's quail (*Callipepla gambelii*), and phainopepla (*Phainopepla nitens*).

4.3.6 Mammals

Generally, the distribution of mammals on a given site is associated with the presence of factors such as access to perennial water, topographical and structural components (e.g., rock piles, vegetation) that provide cover and support prey base, and the presence of suitable soils for fossorial mammals (e.g., sandy areas). Signs of mammal species (tracks, scat, etc.) were detected, but no individuals were observed during the January 2019 reconnaissance survey , a number of common mammals are expected to occur within the BSA given the habitat conditions and species that are known to occur in the region. These may include round-tailed ground squirrel (*Xerospermophilus tereticaudus*), desert cottontail (*Sylvilagus audubonii*), kangaroo rats (*Genus Dipodomys*), coyote (*Canis latrans*), kit fox (*Vulpes macrotis),* and raccoon (*Procyon lotor*). No special-status mammal species were observed in the BSA.

Although bats were not detected in the BSA, they likely forage and roost in the region, particularly associated with riparian/irrigation canal corridors. Many bats tend to concentrate foraging activities in riparian habitats similar to those occurring within IID irrigation canals adjacent to the BSA where insect abundance is high (CDFW, 2000).

Table 3 Wildlife Species Observed in the BSA

Scientific Name	Common Name
Artemisiospiza nevadensis	sagebrush sparrow
Cathartes aura	turkey vulture (flyover)
Falco sparverius	American kestrel (flyover)
Vulpes macrotis arsipus	desert kit fox
Zenaida macroura	mourning dove

*No special-status species were observed in the BSA at the time of the survey.

4.4 JURISDICTIONAL WATERS/WETLANDS

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California: the USACE Regulatory Program regulates activities pursuant to Section 404 of the federal CWA; the CDFW regulates activities under the Fish and Game Code Section 1600-1607; and the RWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Two types of jurisdictional features were documented within the BSA: USACE non-wetland Waters of the U.S. and CDFW State Waters. The site is bisected from northeast to southwest by numerous braided ephemeral drainage channels, which contain surface water only during heavy storm events, draining the mountains to the northeast.

These drainages ultimately flow into the Salton Sea, which is considered a Traditionally Navigable Water. As such, these drainage features would likely be considered federally and state jurisdictional. Representative photographs are provided in Appendix C. The extent of jurisdictional features within the BSA is summarized in Table 4, below, and depicted in Figure 3 included in Appendix A; refer to the Preliminary Jurisdictional Wetlands/Waters Delineation Report for additional information.

Table 4 Jurisdictional Features Occurring within the BSA and Impacts

Wetland Waters of the U.S. (acres)			Non-Wetland Waters of the U.S. (acres)			CDFW Jurisdictional Waters (acres)		
Survey Area	Project Temporary Impact Area	Project Permanent Impact Area	Survey Area	Project Temporary Impact Area	Project Permanent Impact Area	Survey Area	Project Temporary Impact Area	Project Permanent Impact Area
0.00	0.00	0.00	19.15	0.07	6.00	25.83	0.10	8.20

4.5 SOILS

Prior to conducting the field reconnaissance, historic soils data from the Natural Resources Conservation Service (NRCS) was used to determine potential soil types that may occur within the BSA, including where hydric soils may have historically occurred (refer to Figure 4, included in Appendix A). Table 5

below summarizes the characteristics of soils present on the site. Of the soils listed below, “Niland gravelly sand” appears on the NRCS hydric soils list

Table 5 Historic Soils Occurring within the BSA

Map Unit Symbol	Map Unit Name	Description
124	Niland gravelly sand	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 300 feet; parent material consists of alluvium derived from mixed sources; gravelly sand (0-23”), silty clay (23-60”)
128	Niland-Imperial complex, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 300 feet; parent material consists of alluvium derived from mixed sources; low runoff; gravelly sand (0-23”), silty clay (23-60”)
144	Vint and Indio very fine sandy loams, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 300 feet parent material consists of alluvium derived from mixed sources and/or eolian deposits derived from mixed sources; very low runoff; very fine sandy loam (0-10”), loamy fine sand (10-40”), silty clay (40-60”)
NOTCOM	No Digital Data Available	N/A

5.0 SPECIAL STATUS BIOLOGICAL RESOURCES

The background information presented above, combined with field observations taken during the survey, was used to generate a list of special-status natural communities and special-status plant and animal taxa that either occur or may have the potential to occur within the BSA and/or adjacent habitats. For the purposes of this report, special-status taxa are defined as plants or animals that:

- Have been designated as either rare, threatened, or endangered by CDFW or the USFWS, and are protected under either the California or Federal ESAs;
- Are candidate species being considered or proposed for listing under these same acts;
- Are recognized as Species of Special Concern by the CDFW;
- Are ranked as CRPR 1, 2, 3 or 4 plant species;
- Are fully protected by the California Fish and Game Code, Sections 3511, 4700, 5050, or 5515; or
- Are of expressed concern to resource/regulatory agencies, or local jurisdictions

5.1 SPECIAL STATUS NATURAL COMMUNITIES

Special-status natural communities are defined by CDFW (2009) as, "...communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects." All vegetation within the state is ranked with an "S" rank, however only those that are of special concern (S1-S3 rank) are generally evaluated under CEQA. Arrow weed thickets are listed with a rank of S3 and approximately 0.47 acres of this habitat type occurs within the BSA.

5.2 DESIGNATED CRITICAL HABITAT

Literature review conducted prior to conducting field surveys determined that the nearest critical habitat to the BSA is for desert tortoise (*Gopherus agassizii*), which occurs approximately 4 miles to the northeast of the BSA. Marginally suitable habitat for this species was present within and adjacent to the BSA.

5.3 SPECIAL STATUS PLANTS

No special-status plants were observed within the BSA during the January 2019 reconnaissance survey. Table 6 presents a list of special-status plants, including federally- and state-listed species and CRPR 1-4 species that are known to occur in the region surrounding the BSA (within 10 miles). A records search of the CNDDB, the CNPS Online Inventory, and the Consortium of California Herbaria (CCH) was performed for special-status plant taxa and non-protocol plant surveys were conducted within the BSA (refer to Figures 5A and 5B included in Appendix A). Each of the taxa identified in the record searches was assessed for their potential to occur within the BSA based on the following criteria:

- **Present**: Taxa were observed within the BSA during recent botanical surveys or population has been acknowledged by CDFW, USFWS, or local experts.

- **High**: Both a documented recent record (within 10 years) exists of the taxa within the BSA or immediate vicinity (approximately 5 miles) and the environmental conditions (including soil type) associated with taxa presence occur within the BSA.
- **Moderate**: Both a documented recent record (within 10 years) exists of the taxa within the BSA or the immediate vicinity (approximately 5 miles) and the environmental conditions associated with taxa presence are marginal and/or limited within the BSA; the BSA is located within the known current distribution of the taxa and the environmental conditions (including soil type) associated with taxa presence occur within the BSA.
- **Low**: A historical record (over 10 years) exists of the taxa within the BSA or general vicinity (approximately 10 miles) and the environmental conditions (including soil type) associated with taxa presence are marginal and/or limited within the BSA.
- **Not Likely to Occur:** The environmental conditions associated with taxa presence do not occur within the BSA.

Table 6 Known and Potential Occurrences of Special-Status Plant Taxa within the BSA

Species	Status	Habitat and Distribution	Blooming Period	Potential to Occur
Astragalus insularis var. hardwoodii Harwood's milk-vetch	2B.2	Sandy or gravelly. Desert dunes, Mojavean desert scrub. <500 m.	Jan-May	**High**: Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is from 2005, approximately 3 miles to the northwest**.**
Astragalus sabulonum Gravel milk-vetch	2B.2	Usually sandy, sometimes gravelly. Flats, washes, and roadsides. Desert dunes, Mojavean desert scrub, Sonoran Desert scrub. -60 to 885 m.	Feb-Jun	**Moderate**: Suitable habitat occurs within the BSA and the nearest occurrence to the BSA is less than a mile to the south, though it is from 1906.
Chylismia arenaria Sand evening-primrose	2B.2	Rocky, steep slopes. Sonoran Desert scrub, (sandy or rocky). <430 m.	Nov-May	**Low**: Suitable habitat does not occur within the BSA. The nearest occurrence to the BSA is approximately 9 miles northeast.
Cylindropuntia munzii Munz's cholla	1B.3	Sonoran Desert scrub, (sandy or gravelly). 150 to -600 m.	May	**Moderate**: Suitable habitat occurs within the BSA. The nearest occurrences to the BSA are approximately 6 miles east and 6 miles to the northeast.
Ditaxis claryana Glandular ditaxis	2B.2	In sandy wash, in creosote bush scrub. Mojavean desert scrub, Sonoran Desert scrub. <100 m.	Oct, Dec, Jan, Feb, Mar	**Low**: Suitable habitat occurs in the BSA; however, the most recent recorded occurrence dates from 1978 and the nearest occurrence to the BSA is approximately 6 miles southeast.
Koeberlinia spinosa var. tenuispina Slender-spined all thorn	2B.2	Riparian woodland, Sonoran Desert scrub. 400 m.	May-Jul	**Low**: Marginally suitable habitat occurs in the BSA; however, the nearest occurrence to the BSA is approximately 8 miles northeast.

Species	Status	Habitat and Distribution	Blooming Period	Potential to Occur
Senna covesii Cove's cassia	2B.2	Dry, sandy desert washes and slopes. Sonoran Desert scrub. 330 to -760 m.	Mar-Jun (Aug)	**Low**: Suitable habitat occurs within the BSA; however, the nearest occurrence to the BSA is approximately 9 miles northeast.

Source: Baldwin et al. 2012; CDFW, 2018a; CNPS, 2018.

* Months appearing in parenthesis listed under blooming periods above indicates and additional but uncommon blooming period for that specific species.

Status Codes

California Rare Plant Rank (CRPR) designation

1B	Plants rare, threatened, or endangered in California and elsewhere.
2B	Plants presumed extinct in California but more common elsewhere.
.2	Fairly threatened in California (moderate degree/immediacy of threat).
.3	Not very threatened in California (low degree/immediacy of threats or no current threats known).

5.4 SPECIAL STATUS WILDLIFE

Special-status taxa include those listed as threatened or endangered under the federal or California Endangered Species Acts, taxa proposed for such listing, Species of Special Concern, and other taxa that have been identified by the USFWS, CDFW, or local jurisdictions as unique or rare and which have the potential to occur within the BSA. No special-status wildlife species were either observed within or immediately adjacent to the BSA during the reconnaissance survey conducted in January 2019.

The CNDDB was queried for occurrences of special-status wildlife taxa within the USGS topographical quadrangles in which the BSA occurs and the eight surrounding quadrangles, as discussed above in Section 2.0 (refer to Figures 5A and 5B, included in Appendix A). The specific habitat requirements and the locations of known occurrences of each special- status wildlife taxa were the principal criteria used for inclusion in the list of taxa potentially occurring within the BSA. Table 7 summarizes the special-status wildlife taxa known to regionally occur (within 10 miles) and their potential for occurrence in the BSA; refer to Figures 5A and 5B, included in Appendix A for a graphical depiction of species locations. Each of the taxa identified in the database reviews/searches were assessed for its potential to occur within the BSA based on the following criteria:

- **Present:** Taxa (or sign) were observed in the BSA or in the same watershed (aquatic taxa only) during the most recent surveys, or a population has been acknowledged by CDFW, USFWS, or local experts.
- **High:** Habitat (including soils) for the taxa occurs on site and a known occurrence occurs within the BSA or adjacent areas (within 5 miles of the BSA) within the past 20 years; however, these taxa were not detected during the most recent surveys.
- **Moderate:** Habitat (including soils) for the taxa occurs on site and a known regional record occurs within the database search, but not within 5 miles of the BSA or within the past 20 years; or a known occurrence occurs within 5 miles of the BSA and within the past 20 years and marginal or limited

amounts of habitat occurs on site; or the taxa's range includes the geographic area and suitable habitat exists.

- **Low:** Limited habitat for the taxa occurs on site and no known occurrences were found within the database search and the taxa's range includes the geographic area.
- **Not Likely to Occur:** The environmental conditions associated with taxa presence do not occur within the BSA.

Table 7 Known and Potential Occurrences of Special-Status Wildlife within the BSA

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Amphibians					
Incilius alvarius	Sonoran Desert toad	**SSC**	Inhabits grasslands, arid desert lowlands, mountain canyons with oaks and sycamores, and pinyon-oak-juniper mountain forests. Found near washes, river bottoms, springs, reservoirs, canals, irrigation ditches, stock ponds, streams, temporary pools, and sometimes away from water sources.	Suitable habitat occurs within the East Highline Canal in the extreme southwest corner of the BSA. The nearest recorded occurrence to the BSA is less than 1 mile to the southwest; however, this record is from 1916.	**Moderate (in IID canal only)**
Lithobates yavapaiensis	Lowland leopard frog	**SSC**	Found in streams, river side channels, springs, ponds, stock ponds in desert scrub, grassland, woodland, and pinyon juniper habitats. Has been observed in canals, roadside ditches, and ponds in the Imperial Valley during the first quarter of this century (Storer 1925), but the context of its occurrence in those areas is not well understood because that era was a period of extensive habitat alteration. Lowland leopard frogs may have simply been transitory in those areas.	Suitable habitat occurs within the East Highline Canal in the extreme southwest corner of the BSA. The nearest recorded occurrence to the BSA is approximately 1.5 miles to the southwest; however, this record is from 1940.	**Moderate (in IID canal only)**
Scaphiopus couchii	Couch's spadefoot	**SSC**	Desert and arid regions of grassland, prairie, mesquite, creosote bush, thorn forest, sandy washes. Temporary desert rainpools that last at least 7 days, with water temps >15°C and with subterranean refuge sites close by. An insect food base, especially termites, must be available.	Moderately suitable dispersal habitat occurs within the BSA, but formation of temporary desert pools for breeding and gestation would occur infrequently. The nearest recorded occurrence to the BSA is approximately 3 miles to the west.	**Moderate**
REPTILES					
Gopherus agassizii	Desert tortoise	**FT, ST**,	A desert species that needs firm ground in order to dig burrows, or rocks to shelter among. In California it is found in arid sandy or gravelly locations along riverbanks, washes, sandy dunes, alluvial fans, canyon bottoms, desert oases, rocky hillsides, creosote flats and hillsides.	Marginally suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 4.3 miles to the northeast	**Moderate**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
BIRDS					
Athene cunicularia	burrowing owl	**SSC**	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low- growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is less than a mile to the southwest.	**High**
Charadrius alexandrinus nivosus	western snowy plover	**FT, SSC, BCC**	Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	No suitable nesting or foraging habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 4.5 miles to the west.	**Low (as a transient)**
Charadrius montanus	mountain plover	**SSC**	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	No suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 1.4 miles south.	**Moderate (as a transient)**
Empidonax traillii extimus	southwestern willow flycatcher	**FE, SE**	Riparian woodlands in southern California	No suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 2.2 miles northwest.	**Low (as a transient)**
Falco columbarius	merlin	**WL**	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches.Clumps of trees or windbreaks are required for roosting in open country.	Suitable foraging habitat occurs within the BSA, but no roosting habitat. The nearest recorded occurrence to the BSA is approximately 2 miles south.	**Moderate (foraging)**
Gelochelidon nilotica	gull-billed tern	**SSC**	Breeds on gravelly or sandy beaches. Winters in salt marshes, estuaries, lagoons and plowed fields, less frequently along rivers, around lakes and in fresh-water marshes.	No suitable permanent aquatic habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 6 miles southwest.	**Low**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Hydroprogne caspia	Caspian tern	**SA**	Breeds in wide variety of habitats along water, such as salt marshes, barrier islands, dredge spoil islands, freshwater lake islands, and river islands. During migration and winter found along coastlines, large rivers and lakes. Roosts on islands and isolated spits.	No suitable permanent aquatic habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 8 miles southwest.	**Low (as a transient)**
Icteria virens	yellow-breasted chat	**SSC**	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests, in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft. of ground.	No suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 6 miles northwest.	**Low (as a transient)**
Lanius ludovicianus	loggerhead shrike	**SSC**	Loggerhead shrikes inhabit open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. They frequent agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses, and cemeteries. Often seen along mowed roadsides with access to fence lines and utility poles.	Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 7 miles southeast.	**Moderate**
Larus californicus	California gull	**WL**	California gulls primarily breed on sparsely vegetated islands and levees in inland lakes and rivers, but they also breed in salt ponds in the San Francisco Bay. Breeding colonies range from sea level to 9,000 feet elevation and are usually surrounded by water to prevent predators from reaching the nests. During the breeding season they may forage up to 40 miles away from the breeding colony in open areas including farm fields, garbage dumps, meadows, scrublands, yards, orchards, and pastures. They tend to avoid heavily forested areas. In the winter they forage along the Pacific coast, using mudflats, rocky shorelines, beaches, estuaries, and river deltas.	No suitable permanent aquatic habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 10 miles southwest.	**Low (as a transient)**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Laterallus jamaicensis coturniculus	California black rail	**ST, FP**	Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation.	No suitable permanent aquatic habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 4 miles west.	**Low (as a transient)**
Melanerpes uropygialis	Gila woodpecker	**SE**	Found in deserts that have large cacti or trees suitable for nesting (especially saguaro cactus), dry subtropical forests, riparian woodlands, and residential areas.	No suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 9 miles southwest.	**Low**
Pelecanus occidentalis californicus	California brown pelican	**Delist., FP**	Brown pelicans live year-round in estuaries and coastal marine habitats along both the east and west coasts. They breed between Maryland and Venezuela, and between southern California and southern Ecuador—often wandering farther north after breeding as far as British Columbia or New York. On the Atlantic and Gulf coasts they breed mostly on barrier islands, natural islands in estuaries, and islands made of refuse from dredging, but in Florida and southern Louisiana they primarily use mangrove islets. On the west coast they breed on dry, rocky offshore islands. When not feeding or nesting, they rest on sandbars, pilings, jetties, breakwaters, mangrove islets, and offshore rocks.	No suitable permanent aquatic habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 5 miles west.	**Not expected to occur**
Polioptila melanura	black-tailed gnatcatcher	**WL**	Live year-round in semiarid and desert thorn scrub at elevations up to 7,000 feet, often among creosote bush, salt bush, mesquite, palo verde, ocotillo, and spiny hackberry, as well as cacti such as saguaro, prickly pear, cholla, and barrel cactus. Along the lower Colorado River they may use willows as well as the invasive species tamarisk (salt cedar). They are well adapted to dry habitats and tend to be most common in areas with less than 8 inches of annual rainfall. They often live far away from streams and other bodies of water.	Marginally suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 6 miles southwest.	**Moderate**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Rallus obsoletus yumanensis	Yuma Ridgway's rail	**FE, ST, FP**	Live in saltmarsh swamps with extensive vegetation, which they use as refuges, especially at high tide. These birds live in low portions of coastal saltmarshes dominated by cordgrass and pickleweed, or in mangroves. The Yuma form of Ridgway's rail lives inland, in the Salton Sea and in freshwater marshes along tributaries of the Colorado River.	No suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 2 miles northwest.	**Low (as a transient)**
Rynchops niger	black simmer	**SSC**	Open sandy beaches, on gravel or shell bars with sparse vegetation, or on mats of sea wrack (tide-stranded debris) in saltmarsh. Occasionally seen at inland lakes such as the Salton Sea of California. Much of this species' original beach habitat has been developed as houses and attractions for beachgoers. Particularly in the southeastern U.S., artificial islands made from dredge spoils are an important nesting habitat for this and other species.	No suitable permanent aquatic habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 6 miles southwest.	**Low (as a transient)**
Setophaga petechia	yellow warbler	**SSC**	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets and in other riparian plants including cottonwoods, sycamores, ash, and alders.	No suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 3 miles southwest.	**Moderate (as a transient)**
Toxostoma crissale	Crissal thrasher	**SSC**	Found in dense, low scrubby vegetation, such as desert and foothill scrub and riparian brush.	Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 6 miles southwest.	**Moderate**
Toxostoma lecontei	Le Conte's thrasher	**SSC**	Desert scrub, mesquite, tall riparian brush and, locally, chaparral.	Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 9 miles	**Moderate**

Taxa		Status	Habitat Types	Comments	Taxa
Scientific Name	**Common Name**				
Mammals					
Antrozous pallidus	pallid bat	**SSC**	Desert, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats form high temperatures. Very sensitive to disturbance of roosting sits.	Marginally suitable habitat occurs within the BSA, but no roosting habitat. The nearest recorded occurrence to the BSA is approximately 7 miles northeast.	**Low**
Eumops perotis californicus	western mastiff bat	**SSC**	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Suitable foraging habitat occurs within the BSA, but no roosting habitat. The nearest recorded occurrence to the BSA is approximately 1 mile northeast.	**High (foraging only)**
Macrotus californicus	California leaf-nosed bat	**SSC**	Found in the caves and abandoned mines in Sonoran and Mojavean Desert scrub habitats in the Colorado River Valley in southern California, Nevada, and Arizona. In the winter, they choose roosts that are geothermically heated (Tuttle, 2019). Forages near roosts.	No suitable roosting habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 8 miles northeast.	**Low**
Nyctinomops femorosaccus	pocketed free-tailed bat	**SSC**	Variety of arid areas in southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. rocky areas with high cliffs.	Marginally suitable foraging habitat occurs within the BSA, but no roosting habitat. The nearest recorded occurrence to the BSA is approximately 1 mile northeast.	**High (foraging only)**
Ovis canadensis nelsoni	desert bighorn sheep	**FP**	Throughout North America, bighorn sheep distribution is associated with steep, rugged mountainous terrain. Prefer areas with high visibility and avoid habitat with dense vegetation, such as chaparral, which is found at the higher elevational extent of their habitat in the Peninsular Ranges.	Suitable habitat does not occur within the BSA. The nearest recorded occurrence to the BSA is approximately 8 miles northeast.	**Not likely to occur**

Taxa		Status	Habitat Types	Comments	Occurrence Potential
Scientific Name	**Common Name**				
Sigmodon hispidus eremicus	Yuma hispid cotton rat	**SSC**	Along the Colorado River and in grass and agricultural areas near irrigation waters. Wetlands and uplands with dense grass and herbaceous plants. Makes runways through vegetation. Nests on surface and in burrows.	Very limited marginally suitable habitat occurs in the extreme southwest corner of the BSA. The nearest recorded occurrence to the BSA is approximately 2 miles west.	**Low**
Taxidea taxus	American badger	**SSC**	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Suitable habitat occurs within the BSA. The nearest recorded occurrence to the BSA is approximately 6 miles southwest.	**Moderate**

Federal Rankings:
FE = Federally Endangered
FT = Federally Threatened
FC = Federal Candidate for Listing
BCC = USFWS Bird of Conservation Concern
Delist. = removed from federal listing

State Rankings:
FP = Fully Protected
SE= State Endangered
ST = State Threatened
SA = CDFW Special Animal
WL = CDFW Watch List
SSC = Species of Special Concern
Delist. = removed from state listing

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5.5 WILDLIFE CORRIDORS AND SPECIAL LINKAGES

Linkages and corridors facilitate regional animal movement and are generally centered in or around waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Drainages generally serve as movement corridors because wildlife can move easily through these areas, and fresh water is available. Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals.

As the movements of wildlife species are more intensively studied using radio-tracking devices, there is mounting evidence that some wildlife species do not necessarily restrict their movements to some obvious landscape element, such as a riparian corridor. For example, recent radio-tracking and tagging studies of Coast Range newts, California red-legged frogs, southwestern pond turtles, and two-striped garter snakes found that long-distance dispersal involved radial or perpendicular movements away from a water source with little regard to the orientation of the assumed riparian "movement corridor" (Hunt, 1993; Rathbun et al., 1992; Bulger et al., 2002; Trentham, 2002; Ramirez, 2002, 2003a, 2003b). Likewise, carnivores do not necessarily use riparian corridors as movement corridors, frequently moving overland in a straight line between two points when traversing large distances (Newmark, 1995; Beier, 1993, 1995; Noss, et al., 1996; Noss et al., no date). In general, the following corridor functions can be utilized when evaluating impacts to wildlife movement corridors:

- Movement corridors are physical connections that allow wildlife to move between patches of suitable habitat. Simberloff et al. (1992) and Beier and Loe (1992) correctly state that, for most species, we do not know what corridor traits (length, width, adjacent land use, etc.) are required for a corridor to be useful. But, as Beier and Loe (1992) also note, the critical features of a movement corridor may not be its physical traits but rather how well a particular piece of land fulfills several functions, including allowing dispersal, plant propagation, genetic interchange, and recolonization following local extirpation.
- Dispersal corridors are relatively narrow, linear landscape features embedded in a dissimilar matrix that links two or more areas of suitable habitat that would otherwise be fragmented and isolated from one another by rugged terrain, changes in vegetation, or human-altered environments. Corridors of habitat are essential to the local and regional population dynamics of a species because they provide physical links for genetic exchange and allow animals to access alternative territories as dictated by fluctuating population densities.
- Habitat linkages are broader connections between two or more habitat areas. This term is commonly used as a synonym for a wildlife corridor (Meffe and Carroll, 1997). Habitat linkages may themselves serve as source areas for food, water, and cover, particularly for small- and medium-size animals.
- Travel routes are usually landscape features, such as ridgelines, drainages, canyons, or riparian corridors within larger natural habitat areas that are used frequently by animals to facilitate movement and provide access to water, food, cover, den sites, or other necessary resources. A travel route is generally preferred by a species because it provides the least amount of topographic resistance in moving from one area to another yet still provides adequate food, water, or cover (Meffe and Carroll, 1997).

- Wildlife crossings are small, narrow areas of limited extent that allow wildlife to bypass an obstacle or barrier. Crossings typically are manmade and include culverts, underpasses, drainage pipes, bridges, and tunnels to provide access past roads, highways, pipelines, or other physical obstacles. Wildlife crossings often represent choke points" along a movement corridor because useable habitat is physically constricted at the crossing by human-induced changes to the surrounding areas (Meffe and Carroll, 1997).

5.5.1 Wildlife Movement in the Project Area

The BSA is located at the edge of a vast area of generally undeveloped open space that facilitates unimpeded wildlife movement and provides "live-in habitat" for a variety of species. Due to the lack of significant development to the north, northeast, and west of the BSA, wildlife movement is generally unconstrained throughout that area. Lands to the west, southwest, and south are more developed, generally with agriculture to the west and southwest separating the BSA from the Salton Sea and solar power generating facility to the south. In addition, California State Route 111 runs to the southwest of the BSA and likely serves as some level of barrier to habitat movement. For the most part, these areas contain few structures that would significantly impact wildlife movement.

Within the BSA, the lack of structures or other significant development and the presence of relatively intact habitat and features such as desert washes and unpaved roads all facilitate wildlife passage. However, the BSA does not occur within any known wildlife movement corridor or habitat linkage (Penrod et al, 2001).

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Appendix A FIGURES

Appendix B **FLAT TAILED HORNED LIZARD SURVEY RESULTS**

Appendix C PHOTOGRAPHIC LOG

WISTER SOLAR
640 ACRE PROJECT

FLAT-TAILED HORNED LIZARD SURVEY

Prepared for:
ORMAT
6225 Neil Road
Suite 300
Reno, NV 89511

August, 2018

Prepared by:
Barrett's Biological Surveys
Certified as performed in accordance with established biological practices by:

Marie S. Barrett, Biologist
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El Centro, Ca 92243
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CONTENTS

APPENDIX

PROJECT DESCRIPTION

The proposed site is located east of the intersection of Wilkins and Wiest Roads, about 3 miles north of the unincorporated town of Niland. This property is considered “Recreational Open Space” and is located in close proximity to agricultural fields. The zoning is “Open Space/Preservation with Geo-Thermal overlay zone (S2-G). Adjacent to the west are citrus groves; to the north and east is desert and Coachella Canal; desert and agricultural fields are found to the south.

Ormat Technologies, Inc. proposes to construct and operate a 20 MW photovoltaic solar facility on approximately 100 acres within this 640 acre property located in Imperial County, California. The remaining property will remain undeveloped. The solar PV generating facility would consist of 3.2 foot by 6.5 foot PV modules (or panels) on single-axis horizontal trackers in blocks that each hold 2,520 PV panels, with 90 modules in each of 28 rows. The panels would be oriented from east to west for maximum exposure and the foundation would be designed based on soil conditions. The PV modules are made of a poly-crystalline silicon semiconductor material encapsulated in glass. Installation of the PV arrays would include installation of mounting posts, module rail assemblies, PV modules, inverters, transformers and buried electrical conductors. Concrete would be required for the footings, foundations and pads for the transformers and substation work. Tracker foundations would be comprised of either driven or vibrated steel posts/pipes, and/or concrete in some places (depending on soil and underground conditions).

PV modules would be organized into electrical groups referred to as “blocks” capable of producing 844 kW of energy. Every three blocks will be collected to a 2.5 MW inverter and would typically encompass approximately 15 acres including a pad for one transformer and one inverter. The Project would include design elements to reduce the potential glare impacts on adjacent sensitive receptors, e.g. traveling public on nearby county roads, which may include sight obscure proposed fencing.

The electrical output from the PV modules would be low voltage DC power that would be collected and routed to a series of inverters and their associated pad-mounted transformers. Each 2.5 MW array would have (1) one 2500 kW inverter and 2.5 megavolt-ampere (MVA) transformer, which are collectively known as a Power Conversion Station (PCS) [A volt-ampere (VA) is defined as the amount of apparent power in a circuit equal to the product of voltage and current. A MVA is equivalent to 1,000,000 VA]. The inverters would convert the DC power generated by the panels to AC power and the pad mounted transformers step up the voltage to a nominal 12.47 KV voltage level. The 12.47 KV outputs from the transformers are grouped together in PV combining switchgear, which in turn

supplies the geothermal plant auxiliary loads. Existing roads would be utilized and no new access road construction is anticipated.

Construction activities would be sequenced and conducted in a manner that addresses storm water management and soil conservation. During the course of construction, equipment would be placed in service at the completion of each 2500KW power-block. The activation of the power-blocks is turned over to interconnection following the installation of transformer and interconnection equipment upgrades. This in-service timing is critical because PV panels are capable of producing power as soon as they are exposed to sunlight, and because the large number of blocks and the amount of time needed to commission each block requires commissioning to be integrated closely with construction on a block-by- block basis.

Construction of the proposed Project would occur in phases beginning with site preparation and grading and ending with equipment setup and commencement of commercial operations. Generally speaking, construction would consist of three major phases:

(1) Site preparation, which includes clearing grubbing, grading, roads, fences, drainage, and concrete pads;

(2) PV system installation and testing, which includes installation of mounting posts, assembling the structural components, mounting the PV modules, wiring; and

(3) Site clean-up and restoration.

At this time, the exact location of the solar field has not been determined.

FLAT-TAILED HORNED LIZARD DESCRIPTION

The flat-tailed horned lizard (FTHL), *Phrynosoma mcallii,* was first identified in 1852 by U.S. Army Colonel George A. M'Call. There are 14 species of horned lizard; 8 occur in the United States. The FTHL is associated in some overlapping territory with the Desert Horned Lizard (DHL). There are some reports of hybrids found in the Ocotillo, Ca. area.

FTHL has long, thin, sharp horns with a dark line down the middle of the back. There are two rows of fringe scales on each side, base of tail is dorsoventrally flattened. The vent lip does not have black spotting. The back skin is smooth with small spines. The FTHL is a medium-sized horned lizard measuring 2.5 to 4.3 inches in snout to vent length. The two median horns are particularly long and sharp. This is the only species to have a dark vertebral line down the middle of its back. There are also a series of brown spots on either side of the line. This lizard is only found in the lower Colorado River, southwestern Arizona and Baja, California (Sherbrooke, Introduction to Horned Lizards, 2003). The scat, which is

shiny black or mahogany, from the ingestion of ants (the primary diet of FTHL and DHL), is an indication of the presence of either species. The female deposits eggs in an underground nest and covers them with sand.

SURVEY PROTOCOL

Survey protocol is found in *Flat-tailed Horned Lizard Rangewide Management Strategy, 2003 Revision.* Survey protocol was discussed with Magdalena Rodriguez, Senior Environmental Scientist (Specialist), California Department of Fish and Wildlife, Ontario, CA office. It was determined to concentrate on the entire property, not just area development is expected.

Since this site is determined to be in an area of unknown occurrence, surveys must be conducted to determine the presence or absence of FTHLs prior to project initiation. Both live lizard and scat surveys shall be done with the emphasis on live lizard. Surveys shall be conducted from April through September when temperatures are between 75 and 100°F. Surveys should cover at least 10 hours if the project consists of one section (640 acres). An hour will be spent surveying each hectare; a total of 10 hectares will be surveyed.

Flat-tailed horned lizard certified biologists included:

Glenna Barrett
Marie Barrett
Shawna Bishop
Jacob Calanno
Dani Figueroa

Certificates are attached.

SURVEY RESULTS

On August 31, 2018 from 7:00 AM to 10:00 AM, live lizard and scat surveys were conducted on the site.

Table 1 Survey Areas

Area	Time/Weather	Live Lizard	Scat	Results	Comments
1 NW:33°16'18.0"/115°30'1.2" SW:33°16'16.0"/115°30'2.4" NE: 33°16'16.1"/115°29'59.3" SE: 33°16'15.0"/115°29'59.8" Biologist: Glenna Barrett	0820-0920 96°F/clear/2-4 mph	None	None	None seen	Few ants Soil is typically gravelly sand with soft flat sandstones and flagstones

Area	Time/Weather	Live Lizard	Scat	Results	Comments
2. NW:33°16'25.0"/115°29'47.7" SW:33°16'21.8"/115°29'49.0" NE: 33°16'23.9"/115°29'45.0" SE: 33°16'21.7"/115°29'46.4" Biologist: Glenna Barrett	0710-0810 80°F/clear 2-4 mph	None	None	None seen	Few ants Soil is typically gravelly sand with soft flat sandstones and flagstones
3 NW:33°16'1.7"/115°29'51.1" SW:33°15'59.0"/115°29'51.3" NE: 33°16'16.1.3"/115°29'48.0" SE: 33°15'58.6"/115°29'48.3" Biologist: Jacob Calanno	0815-0915 94°F/clear/2-4 mph	None	None	None seen	5 Ant hills with ants observed Soil is typically gravelly sand with soft flat sandstones and flagstones
4 NW:33°15'53.4"/115°29'42.4." SW:33°15'50.6"/115°29'42.9" NE: 33°15'52.5"/115°29'40.2" SE: 33°15'50.8"/115°29'41.0" Biologist: Jacob Calanno	0720-0820 80°F/clear 2-4 mph	None	None	None seen	3 Ant hills with ants observed Soil is typically gravelly sand with soft flat sandstones and flagstones
5 NW:33°16'33.6"/115°30'26.4." SW:33°15'41.3"/115°30'28.2" NE: 33°16'30.4"/115°30'11.0" SE: 33°16'40.4"/115°30'10.6" Biologist: Dani Figueroa	0705-0805 80°F/clear 2-4 mph	None	None	None seen	No ants observed Soil is typically gravelly sand with soft flat sandstones and flagstones
6 NW:33°16'29.6"/115°30'16.4." SW:33°16'27.1"/115°30'5.2" NE: 33°16'17.0"/115°30'4.9"	0815-0915 80°F/clear 2-4 mph	None	None	None seen	No ants observed Soil is

Area	Time/Weather	Live Lizard	Scat	Results	Comments
SE: 33°16'40.4"/115°30'10.6" Biologist: Dani Figueroa					typically gravelly sand with soft flat sandstones and flagstones
7 NW:33°16'14.0"/115°30'23.7." SW:33°16'11.1"/115°30'23.6" NE: 33°16'14.0"/115°19'19.8" SE: 33°16'11.2"/115°30'19.8" Biologist: Shawna Bishop	0735-0835 80°F/clear 2-4 mph	None	None	None seen	No ants observed Soil is typically gravelly sand with soft flat sandstones and flagstones
8 NW:33°16'6.1"/115°30'28.1." SW:33°16'3.1"/115°30'28.1" NE: 33°16'6.1"/115°30'25.0" SE: 33°16'3.1"/115°30'25.0" Biologist: Shawna Bishop	0840-0940 94°F/clear 2-4 mph	None	None	None seen	No ants observed Soil is typically gravelly sand with soft flat sandstones and flagstones
9 NW:33°15'57.6"/115°30'30.5." SW:33°15'55.5"/115°30'30.8" NE: 33°15'57.8"/115°30'27.1" SE: 33°15'55.9"/115°30'27.9" Biologist: Marie Barrett	0730-0830 80°F/clear 2-4 mph	None	None	None seen	One ant hill observed Soil is typically gravelly sand with soft flat sandstones and flagstones
10. NW:33°15'59.1"/115°30'12.4" SW:33°15'57.2"/115°30'13.4" NE: 33°15'58.1"/115°30'10.0" SE: 33°15'56.0"/115°30'10.0" Biologist: Glenna Barrett	0900-1000 88°F/clear 2-4 mph	None	None	None seen	Few ants Soil is typically gravelly sand with soft flat sandstones

Area	Time/Weather	Live Lizard	Scat	Results	Comments
					and flagstones

Permission was not obtained from private property owners who own surrounding property, therefore this survey was conducted exclusively onsite.

No live lizards or scat were found.

INTERPRETATION OF SURVEY RESULTS

Flat-tailed Horned Lizard Rangewide Management Strategy, 2003 Revision criteria state that the species are absent if:

1. No scat or horned lizards are found and

    a. No FTHL have been found within two miles of project site (search of California Natural Diversity Data Base (CNDDB) August, 2018)

Also, the habitat is not continuous (see Location Map). Coachella Canal and agriculture separate the site from more favorable habitat to the north and east.

As a result of this live lizard and scat survey, it has been determined that there are no FTHL on this project site.

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Working Group of the Flat-Tailed Horned Lizard Interagency Coordinating Committee, *Flat-tailed Lizard Rangewide Management Strategy,* May, 1997.

APPENDIX A
PHOTOGRAPHS

PHOTOGRAPHS

Plot 1

1. Northwest corner facing north; gravely and with sandstone and creosote

2. Northwest corner facing south; gravelly sand with creosote and sandstone

Plot 2

3. Northwest corner facing south; gravelly sand with creosote

4. Northwest corner facing west; gravelly sand with disturbed soil

Plot 3

5. Southeast corner of hectare plot; gravelly sand

6. Northeast corner of hectare plot

Plot 4

7. Southeast corner of hectare plot

8. Center of hectare plot looking east; abandoned bowling ball

Plot 5

9. From northwest corner of hectare plot looking to center; gravelly sand, sandstone and creosote in background

10. Southwest corner of hectare plot looking east

Plot 6

11. Burro bush and gravelly sand; center of hectare plot

12. Southwest corner of hectare plot looking east; gravelly sand substrate

15. Southeast corner of hectare plot looking south; acacia in background; gravelly sand

16. Southwest corner of hectare plot looking northeast; gravelly sand substrate with sandstone and acacia in background

17. Looking northwest from southeast corner of hectare plot; gravelly sand substrate with sandstone and creosote in background

18. Looking northeast from southwest corner of hectare plot; gravelly sand substrate with sandstone and creosote in background

19. Looking northeast from southwest corner of hectare plot; gravelly sand substrate with sandstone and acacia trees in background

20. Looking south from center of hectare plot; gravelly sand substrate with creosote and acacia trees in background

Plot 10

21. Northwest corner of hectare plot looking south; creosote and gravelly sand substrate

22. Southwest corner of hectare plot facing northeast; acacia, creosote and gravelly sand substrate

APPENDIX B
SPECIES FOUND ON SITE

ANIMALS/INVERTEBRATES OBSERVED ON OR NEAR SITE	
Common name	***Scientific name***
Birds	
Loggerhead Shrike	*Lanius ludovicianus*
Mourning Dove	*Zenaida macroura*
White throated swift	*Aeronautes saxatalis*
Mammals	
Canine tracks/scat	*various*
Cottontail	*Sylvilagus audubonii*
Insects	
Alfalfa butterfly	*Colias eurytheme*
Ants (red harvester)	*various*
Bees	*Aphis sp.*
Damsel/dragonflies	*various*
Desert termite	*Gnathamitermes tubiformans*
Grasshopper	*various*
Reptiles	
Sidewinder (tracks)	*Crotalus cerastes*

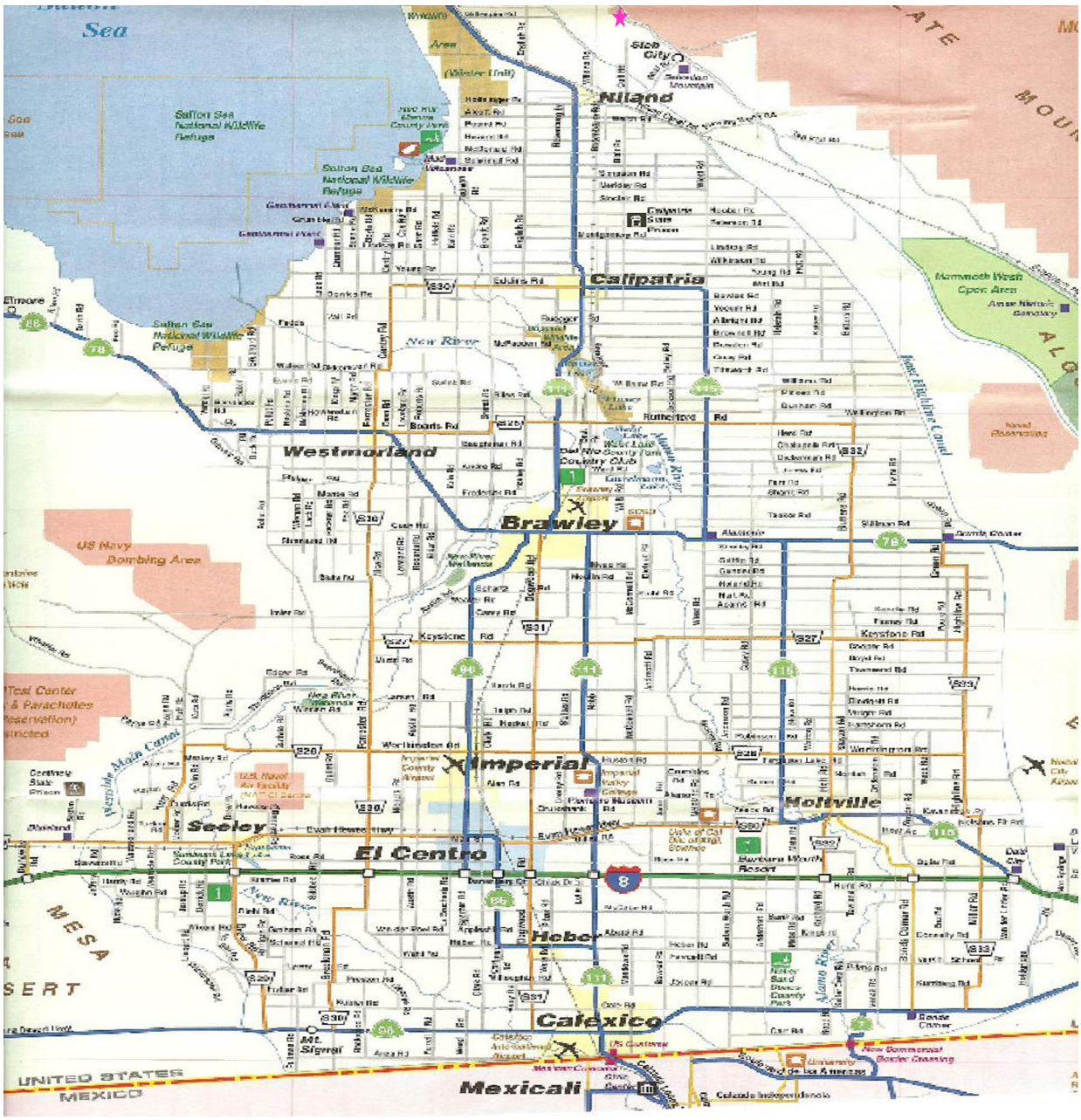
BOTANICAL SPECIES OBSERVED ON OR NEAR SITE		
Common name	**Scientific name**	**Cal-IPC Inventory listing***
Burroweed	*Ambrosia dumosa*	None
California Fagonia	*Fagonia laevis*	None
Cats claw	*Acacia greggii*	None
Acacia	*Acacia spp.ne*	None
Creosote	*Larrea tridentata*	None
Mesquite	*Prosopis sp.*	None
Salt Bush	*Atriplex sp.*	None
Saltcedar	*Tamarix sp.*	Invasive/High

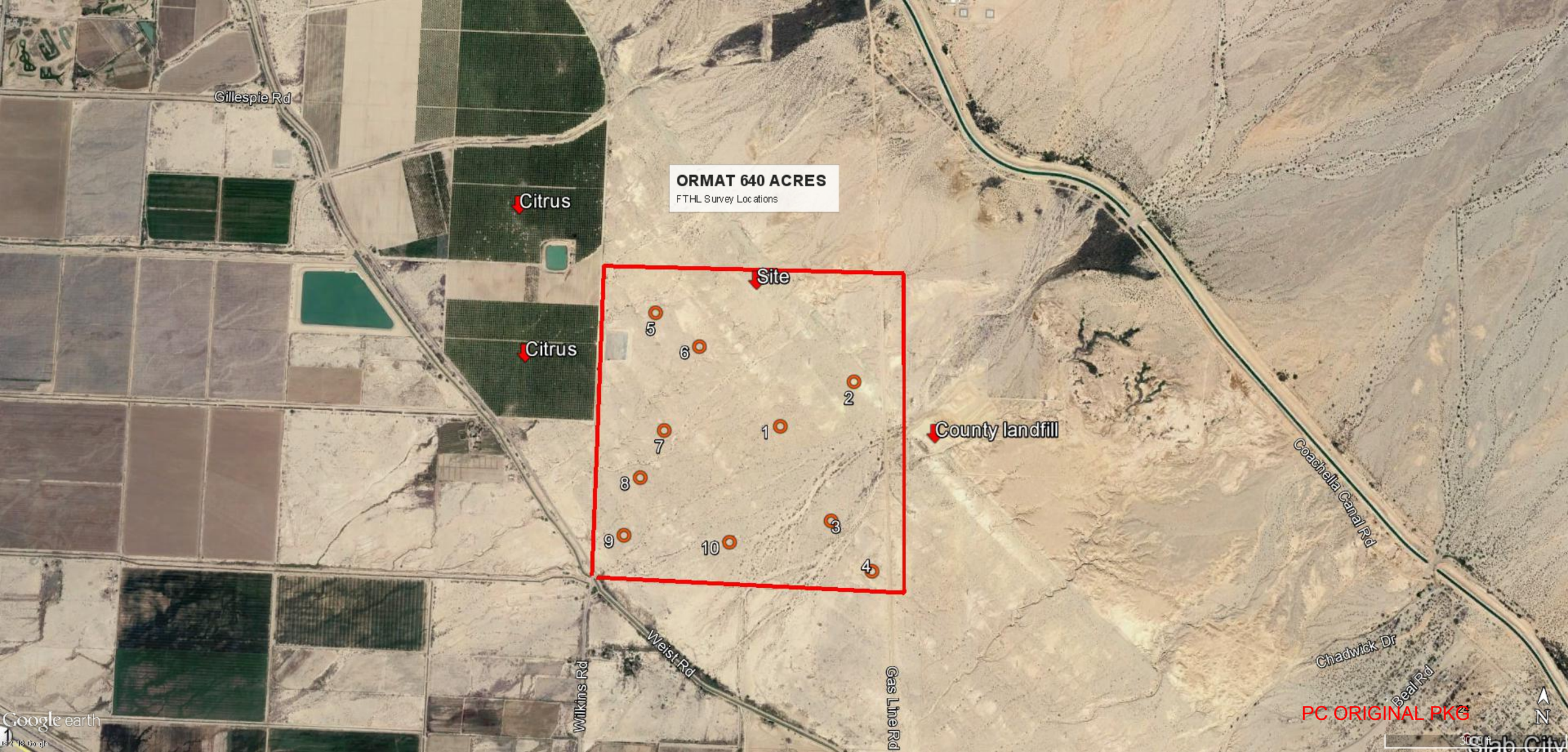
*http://www.cal-ipc.org/plants/inventory/#inventory

APPENDIX C
MAPS

PROJECT STATEWIDE LOCATION

PROJECT REGIONAL LOCATION




ORMAT 640 ACRES
FTHL Survey Locations
Site
Citrus
Citrus
County landfill
Gillespie Rd
Weist Rd
Wilkins Rd
Gas Line Rd
Coachella Canal Rd
Chadwick Dr
Beal Rd
1
2
3
4
5
6
7
8
9
10
PC ORIGINAL PKG
N
Google earth

APPENDIX D
QUALIFICATIONS

State of California – The Resources Agency ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
78078 Country Club Dr., Ste. 109
Bermuda Dunes, CA 92203
(760) 200-9158
http://www.dfg.ca.gov

June 13, 2008

To whom it may concern,

Title 14 of the California Code of Regulations authorizes the Department of Fish and Game (the Department) to regulate the take and possession of wildlife in the State of California.

This letter provides proof of authorization by the Department for the individual named below to take, possess, and transport Flat-tailed Horned Lizards (*Phrynosoma mcallii*), while performing the duties of biological monitor, as part of mitigation requirements for construction or other activities which place individual lizards at risk. This person is also authorized to take and possess lizards briefly for data collection, during surveys conducted for public agencies. He/she has completed Department-approved training in tracking and finding Flat-tailed Horned Lizards.

This authorization does not permit activities, such as the trapping or marking of lizards, which otherwise require the possession of a current Scientific Collecting Permit issued by the Department.

This authorization is in effect permanently, unless revoked, at the Department's discretion.

Sincerely,

Craig J. Weightman
Senior Environmental Scientist (Acting)
Inland Deserts Region

Authorized Individual

Marie Barrett
Barrett Biological Surveys
2035 Forrester Road
El Centro, CA 92243

Conserving California's Wildlife Since 1870

State of California – The Resources Agency
DEPARTMENT OF FISH AND GAME
78078 Country Club Dr., Ste. 109
Bermuda Dunes, CA 92203
(760) 200-9158
http://www.dfg.ca.gov

ARNOLD SCHWARZENEGGER, Governor

June 13, 2008

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Sincerely,

Craig J. Weightman
Senior Environmental Scientist (Acting)
Inland Deserts Region

Authorized Individual

Glenna Westbrook (Barrett)
Barrett Biological Surveys
29112 Avenida de las Flores
Quail Valley, CA 92587

Conserving California's Wildlife Since 1870

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DEPARTMENT OF FISH AND GAME
Inland Deserts Region
78078 Country Club Dr., Ste. 109
Bermuda Dunes, CA 92203
www.dfg.ca.gov

***EDMUND G. BROWN Jr.**, Governor*
***JOHN MCCAMMAN**, Director*

June 28, 2011

Subject: Authorization for Shawna Bishop,

To Whom It May Concern,

Title 14 of the California Code of Regulations authorizes the Department of Fish and Game (the Department) to regulate the take and possession of wildlife in the State of California.

This letter provides proof of authorization by the Department for the individual named below to take, possess, and transport **Flat-tailed Horned Lizards** (*Phrynosoma mcallii*) out of harm's way, while performing the duties of biological monitor, as part of mitigation requirements for construction or other activities which place individual lizards at risk. This person is also authorized to possess lizards briefly for data collection, during surveys conducted for public agencies. He/she has completed Department-approved training in tracking and finding Flat-tailed Horned Lizards.

This authorization does not permit activities, such trapping, marking, or sacrifice of lizards, which otherwise would require the possession of a current Scientific Collecting Permit issued by the Department.

This authorization is in effect permanently, unless revoked, at the Department's discretion.

Sincerely,

Jack Crayon

Jack Crayon
Associate Biologist
Inland Deserts Region

Authorized Individual:

Shawna Bishop
619 Rockwood Road
El Centro, CA 92243

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Inland Deserts Region
78078 Country Club Dr., Ste. 109
Bermuda Dunes, CA 92203
www.dfg.ca.gov

EDMUND G. BROWN Jr., *Governor*
JOHN MCCAMMAN, *Director*

June 28, 2011

Subject: Authorization for Danielle Barrett,

To Whom It May Concern,

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This authorization is in effect permanently, unless revoked, at the Department's discretion.

Sincerely,

Jack Crayon

Jack Crayon
Associate Biologist
Inland Deserts Region

Authorized Individual:

Danielle Barrett
1744 Lotus Ave
El Centro, CA 92243

Conserving California's Wildlife Since 1870

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Inland Deserts Region
78078 Country Club Dr., Ste. 109
Bermuda Dunes, CA 92203
www.dfg.ca.gov

EDMUND G. BROWN Jr., Governor
CHARLTON H. BONHAM, Director

September 26, 2012

Subject: Authorization for Jacob Jaime Calanno,

To Whom It May Concern,

Title 14 of the California Code of Regulations authorizes the Department of Fish and Game (the Department) to regulate the take and possession of wildlife in the State of California.

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This authorization does not permit activities, such trapping, marking, or sacrifice of lizards, which otherwise would require the possession of a current Scientific Collecting Permit issued by the Department.

This authorization is in effect permanently, unless revoked, at the Department's discretion.

Sincerely,

Jack Crayon

Jack Crayon
Environmental Scientist
Inland Deserts Region

Authorized Individual:

Jacob Jaime Calanno
PO Box 458
Niland, CA 92257

Conserving California's Wildlife Since 1870

Wister Solar Project
Waters/Wetlands Delineation Report

Preliminary Jurisdictional
Waters/Wetlands Delineation Report

June 12, 2018

Rev. May 7, 2020

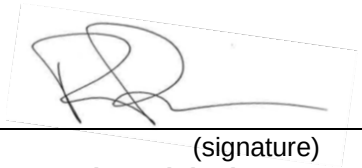
Prepared for:

Orni 33 LLC.

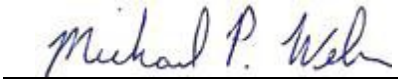
Prepared by:

Stantec Consulting Services Inc.
290 Conejo Ridge Avenue
Thousand Oaks, California 91361

This document entitled Wister Solar Project Waters/Wetlands Delineation Report was prepared by Stantec Consulting Services Inc. (“Stantec”) for the account of Orni 33, LLC (the “Client”). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by 
(signature)

Rocky Brown, Associate Biologist

Reviewed by 
(signature)

Michael Weber, Principal Scientist

Approved by 
(signature)

Jared Varonin, Principal Biologist

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Abbreviations

CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
IID	Imperial Irrigation District
GIS	Global Information Systems
GPS	Global Positioning System
JD	Jurisdictional Delineation
MSL	Mean Sea Level
NRCS	Natural Resources Conservation Service
RWQCB	Regional Water Quality Control Board
Project	Wister Solar Project
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geographical Survey

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

This preliminary Jurisdictional Waters/Wetlands Delineation (JD) Report serves as guidance in establishing baseline conditions for resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the Colorado River Basin Regional Water Quality Control Board (RWQCB) for the Wister Solar Project (Project). Specifically, the purpose of the JD was to determine the location and extent of waters and/or wetlands subject to potential jurisdictional authority within Project site, which measures approximately 123 acres; the entire Project site, along with a 100-ft buffer, was surveyed in support of this JD report and is hereafter referred to as the Survey Area.

1.2 PROJECT LOCATION

The Survey Area is located in northern Imperial County, California, approximately two miles northeast of the community of Niland, approximately five miles east of the Salton Sea and 0.5 mile southwest of the Coachella Canal (Appendix G, Figure 1). It is situated in Township 10 South, Range 14 East of the U.S. Geographical Survey (USGS) Wister 7.5-minute topographic quadrangle. The Survey Area consists of a relatively undeveloped, square parcel of land with its southwest corner near the intersection of Weist and Wilkins Roads (Appendix G, Figure 2). The unpaved Gas Line Road runs north/south, relatively parallel inside the eastern Project boundary. The majority of the Survey Area is undisturbed with exception of the aforementioned Gas Line Road and an approximately five-acre area of previously graded land in the northwest portion of the site, adjacent to the western Project boundary. There is a transmission line extending from outside the northern boundary to outside the eastern Project boundary with an associated unpaved access road.

1.3 PROJECT DESCRIPTION

Orni 33, LLC (Client) is proposing to construct, operate, and maintain a 20-Megawatt (MW) photovoltaic solar farm on approximately 100 acres within the 640-acre Project site.

1.4 LEAD AGENCY NAME AND ADDRESS

County of Imperial
Planning & Development Services Department
940 West Main Street
El Centro, California 92243

1.5 CONTACT PERSON AND PHONE NUMBER

Jim Minnick
Planning & Development Services Director 801 Main Street
El Centro, California 92243 Phone: (442) 265-1736
Email: jimminnick@co.imperial.ca.us

2.0 EXISTING CONDITIONS

2.1 TOPOGRAPHY AND SURROUNDING AND USES

The Survey Area is located in the Colorado Desert and generally slopes gradually from northeast to southwest, with elevations ranging from approximately 20 feet above mean sea level (MSL) along the northern Project boundary to -30 feet below MSL at its southwest corner. The site is bordered by agricultural land to the northwest and undeveloped land to the north, east, south, and southwest, though the land abutting the parcel to the south has been disked.

Lands within the Survey Area are zoned as Recreation/Open Space (Imperial County, 2007). Surrounding lands are zoned as a mix of Agriculture, Recreation/Open Space, and Government/Special Public. It is bordered largely by open space to the north, east, and south, with agricultural lands (orchards) occurring to the west and northwest. An existing solar generating facility occurs approximately 0.5 miles south and a County landfill is located to the east of the Survey Area. While it is largely undeveloped, the unpaved Gas Line Road passes roughly parallel to the eastern boundary of the Survey Area and a transmission line and associated unpaved access road run from outside the eastern boundary from north to south. The East Highline Canal, an Imperial Irrigation District (IID) water delivery conveyance passes through the extreme southwestern corner of the Survey Area.

2.2 VEGETATION

Generally, description of plant communities follows the MCV II classification system described in the second edition of *A Manual of California Vegetation* (Sawyer et al., 2009). Species scientific and common names correspond to those described in the second edition of *The Jepson Manual* (Baldwin et al., 2012).

The Survey Area supports three land cover types: creosote bush – white bursage scrub, blue palo verde – ironwood woodland, and arrow weed thickets. Descriptions of these land cover types are provided below and depicted on Figure 3 (Appendix G).

Creosote Bush – White Bursage Scrub

This is the primary land cover type occurring throughout most of the Survey Area. Creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) are the co-dominant species, though vegetative cover throughout the Survey Area. Other shrub species present within this community include a number of saltbush species (*Atriplex* spp.) and desert thorn (*Lyceum brevipes*). The sparse understory consists of native and non-native herbaceous species such as desert dandelion (*Malacothrix glabrata*) and desert plantain (Plantago ovata) and non-native grasses, primarily bromes (*Bromus* spp*.)* and Mediterranean grass (*Schismus barbatus*). Approximately 175.34 acres of creosote bush – white bursage scrub occurs within the Survey Area.

Blue Palo Verde – Ironwood Woodland

This vegetation community occurs along the margins of some of the larger drainage features within the Survey Area, particularly in the southeast portion of the site. In the Survey Area, this community is dominated by desert ironwood (*Olneya tesota*) trees, though a few blue palo verde (*Parkinsonia florida*) and honey mesquite (*Prosopis glandulosa*) trees are sparsely interspersed throughout the community. Understory consists of white bursage, creosote bush, and brome grasses. Approximately 2.71 acres of blue palo verde – ironwood woodland occurs within the Survey Area.

Arrow Weed Thickets

This is the dominant vegetation along the small section of the East Highline Canal in the southwestern corner of the BSA. Arrow weed thickets within the BSA are dominated by arrow weed (*Pluchea sericea*). Other species such as cattails (*Typha* spp.), common reed (*Phragmites australis*), and saltcedar (*Tamarix ramosissima*) are also present, but much less common. Arrow weed thickets are recognized by CDFW as a sensitive vegetation type. Approximately 0.03 acres of arrow weed thickets occurs within the Survey Area.

2.3 CLIMATE

The region experiences a desert climate characterized by hot, dry summers and warm winters. Average annual temperatures range from 42 degrees Fahrenheit in December to 107 degrees Fahrenheit in July, and average annual precipitation measures 2.87 inches (US Climate Data, 2018).

2.4 HYDROLOGY AND GEOMORPHOLOGY

The Survey Area is underlain by the Colorado River Basin and is within the Imperial Hydrologic Unit and Brawley Hydrologic Area (SWRCB, 2006). The Colorado River Basin Region covers approximately 13 million acres (20,000 square miles) in the southeastern portion of California. It includes all of Imperial County and portions of San Bernardino, Riverside, and San Diego counties. It is bounded for 40 miles on the northeast by the State of Nevada, on the north by the New York, Providence, Granite, Old Dad, Bristol, Rodman, and Ord mountain ranges, on the west by the San Bernardino, San Jacinto, and Laguna mountain ranges, on the south by the Republic of Mexico, and on the east by the Colorado River and State of Arizona. Geographically, the region represents only a small portion of the total Colorado River

drainage area, which includes portions of Arizona, Nevada, Utah, Wyoming, Colorado, New Mexico, and Mexico (SWRCB, 2006).

A significant geographical feature of the region is the Salton Trough, which contains the Salton Sea and the Coachella and Imperial valleys. The two valleys are separated by the Salton Sea, which covers the lowest area of the depression. The trough is a structural extension of the Gulf of California. In prehistoric times, it contained the ancient Lake Cahuilla (not to be confused with the present Lake Cahuilla which is located at the terminus of the Coachella Branch of the All- American Canal) (SWRCB, 2006).

Regional drainage waters resulting from Colorado River diversions and use, and which do not return to the Colorado River, drain into the Salton Sea. The portion of the region that does not drain into the Colorado River is referred to as the Colorado River Basin (West), or West Basin. Much of the northern portion of the West Basin drains to several individual internal sinks or playas, while the southern portion generally drains to the Salton Sea. The Imperial and Coachella Valleys contain numerous drains that transport irrigation return flows and stormwater, as well as canals for importation and distribution of Colorado River water. The Salton Sea, which is replenished principally by irrigation drainage and stormwater, is the largest body of water in the West Basin.

The Salton Sea serves as a reservoir to receive and store agricultural drainage and seepage waters, but also provides important wildlife habitat and is used for recreational purposes, which include boating and fishing. Several smaller constructed recreational lakes are located in the Imperial Valley. In addition, Lake Cahuilla in Coachella Valley is used to store Colorado River water for irrigation and recreational purposes (SWRCB, 2006).

Within the East Colorado Basin Plan, the proposed Project is located in the Imperial Valley Planning Area. This planning area comprises 2,500 square miles in the southern portion of the region, almost all of it in Imperial County. The eastern and western boundaries are contiguous with the western and eastern boundaries of the East Colorado River Basin and the Anza-Borrego Planning Area, respectively. Its northern boundary is along the Salton Sea and the Coachella Valley Planning Area, and its southern boundary follows the international boundary with Mexico. The Planning Area's central feature is the flat, fertile Imperial Valley. The principal communities are El Centro, Brawley, Imperial, Holtville, and Calexico. Within the Imperial Valley Planning Area, surface waters drain primarily toward the Salton Sea (SWRCB, 2006).

2.5 SOILS

Soil data from the Natural Resources Conservation Service (NRCS), obtained through the Web Soil Survey, was used to determine potential soil types, including where hydric soils have historically occurred; however, soils within the Survey Area have not been mapped. As such, soils from immediately adjacent areas were considered to be representative of soils that may occur on the Survey Area (Appendix G, Figure 4). Soils predicted to be within the Survey Area are dominated by gravelly sand and silty clay, some of which are considered to be hydric soils. Characteristics of soils predicted to be present on the site are summarized in Appendix D. Table 1 below summarizes the soils predicted to occur within the Survey Area.

Table 1 Soil Units Potentially Occurring within the Survey Area

Map Unit Name	Description	Hydric Soil?
Niland gravelly sand	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 300 feet; parent material consists of alluvium derived from mixed sources; gravelly sand (0-23”), silty clay (23-60”)	Yes
Niland-Imperial complex, wet	A moderately well-drained soil that occurs on basin floors at elevations between -230 to 300 feet; parent material consists of alluvium derived from mixed sources; low runoff; gravelly sand (0-23”), silty clay (23-60”)	No

3.0 REGULATORY BACKGROUND

Jurisdictional waters, wetlands, and riparian habitat are regulated by the USACE, RWQCB, and CDFW. The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (CWA); the CDFW regulates activities under California Fish and Game Code Sections 1600-1617; the RWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act. Refer to Appendix F for additional details on regulatory authorities and background.

4.0 WATERS/WETLAND DELINEATION

4.1 DELINEATION METHODOLOGY

This section describes the methods employed by Stantec during the survey conducted to determine the extent of potentially jurisdictional wetlands and/or waters that occur within the Survey Area. Prior to conducting the field assessment, Stantec reviewed current and historic aerial photographs, detailed topographic maps, soil maps of the proposed Survey Area (NRCS, 2020), and local and state hydric soil lists to evaluate the potential active channels and wetland features that occur within the Survey Area. During the field assessment, hydrology data was collected using an Apple iPad with ArcGIS Collector app and Bad Elf global positioning system (GPS) receiver. Field data was used to map drainages in the office using Global Information System (GIS) and total jurisdictional area for each jurisdictional feature was calculated.

When a large number of drainage features are present on a site, especially in the arid west, traditional methods of walking and mapping the centerline of each feature can be cumbersome and, at times, infeasible. Therefore, employing a transect methodology, which prescribes collecting data at specified intervals and is based on methodology in the USACE *Wetland Delineation Manual* (1987) and the *Arid West Supplement* (2011) allows for detailed mapping of drainage features when used in conjunction with high resolution aerial photography. The Survey Area was surveyed along pre-determined transects

oriented northwest to southwest (i.e., perpendicular to flow); refer to Appendix G, Figure 5 for the location of the transects.

4.1.1 Federal Wetlands/Waters

Jurisdictional non-wetland "waters of the U.S." are delineated based on the limits of the ordinary high water mark (OHWM) as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetative characteristics. Jurisdictional wetlands are delineated using a routine determination in accordance with the methods outlined in the USACE *Wetland Delineation Manual* (1987) and the *Arid West Supplement* (2011) based on three wetland parameters: dominant hydrophytic vegetation, wetland hydrology, and hydric soils. Tables 1 and 2 in Appendix E (Potential Geomorphic and Vegetative Indicators of Ordinary High Water Marks for the Arid West) provide a list of key physical features for determining the OHWM identified by the arid west manual.

4.1.2 CDFW Jurisdictional Waters

CDFW jurisdiction is delineated to the top of the banks of the channel and/or to the edge of the associated riparian canopy/riparian habitat, whichever is wider. Within the Survey Area, the CDFW jurisdictional boundary of the ephemeral drainages is generally wider than the OHWM. Therefore, the total acreage of CDFW jurisdictional waters is greater than the combined acreage of federal jurisdictional waters.

4.1.3 Wetland Vegetation

Vegetation percent cover is estimated for plant species in each of the four strata (tree, sapling/shrub, herb, and woody vine) and plant species in each stratum are ranked based on canopy dominance (USACE, 2008). Species that contribute to a cumulative coverage total of at least 50 percent and any species that comprised at least 20 percent of the total coverage for each stratum are recorded on the Field Data Sheets (50/20 rule). Wetland indicator status is assigned to each dominant species using the *Region 0 List of Plant Species that Occur in Wetlands: 1996 National Summary* (USFWS, 1997), *Wetland Plants of Specialized Habitats in the Arid West* (USACE, 2007), and the *Arid West Region of The National Wetland Plant List* (USACE, 2012). If greater than 50 percent of the dominant species from all strata are Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation is considered to be met (refer to Appendix E, Table 3).

4.1.4 Wetland Hydrology

The presence of wetland hydrology is assessed by evaluating the presence of primary and secondary hydrology indicators (refer to Appendix E, Tables 4 and 5). These indicators are designed to determine whether an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially in the root zone (USACE, 1987 and 2008b). The *Arid West Supplement* includes two additional indicator groups that can be utilized during dry conditions or in areas where surface water/saturated soils are not present; these are Group B (evidence of recent inundation) and Group C (evidence of recent soil saturation) (USACE, 2008). The indicators are divided into two categories

(primary and secondary indicators) and presence of one primary indicator from any of the groups is considered evidence of wetland hydrology. If only secondary indicators are present, two or more must be observed to conclude presence of wetland hydrology. Indicators are intended to be one-time observations of site conditions representing evidence of wetland hydrology when hydrophytic vegetation and hydric soils are present (USACE, 2008).

4.1.5 Wetland Soils

Soils data from the NRCS is referenced to determine if hydric soils have been previously documented and/or historically occurred in or near the Project Area. Based on this review hydric soils were potentially expected to occur within the Project Area. The Niland gravelly sand is considered a hydric soil. Appendix E, Tables 6 and 7, includes a complete list of hydric soils indicators.

4.2 RESULTS

Two types of jurisdictional features were documented within the Survey Area: USACE non-wetland waters and CDFW State Waters. The site is bisected from northeast to southwest by numerous ephemeral drainage channels, which contain surface water only during storm events, draining the mountains to the northeast. These drainages ultimately flow into the Salton Sea, which is considered a Traditionally Navigable Water. As such, these drainage features would likely be considered federally and state jurisdictional. Representative photographs are provided in Appendix C.

Appendix A summarizes the jurisdictional features present within the Survey Area and their acreages, and Figure 5 in Appendix G depicts their location within the Survey Area. Appendix B contains the OHWM Data Forms completed during the assessment. According to the *NRCS Hydric Soils List* (NRCS, 2020) there are likely two mapped hydric soils within the Survey Area. Table 2 lists the plant species observed onsite and lists their wetland indicator status, if applicable.

Table 2 Plant Species Observed Within the Survey Area and Wetland Indicator Status

Scientific Name	Common Name	Wetland Indicator Status
Ambrosia dumosa	white bursage	UPL
Astragalus sp.	astragalus	-
Atriplex canescens	fourwing saltbush	FACU
Cholla sp.	cholla	-
Chorizanthe sp.	chorizanthe	-
Datura wrightii	jimsonweed	UPL
Eriogonum sp.	buckwheat	-
Larrea tridentate	creosote bush	UPL
Lycium brevipes	desert thorn	-
Olneya tesota	desert ironwood	-
Parkinsonia florida	blue palo verde	-
Prosopis glandulosa	honey mesquite	FACU/UPL

Scientific Name	Common Name	Wetland Indicator Status
Suaeda nigra	bush seepweed	OBL
Tamarix ramosissima	tamarisk	FAC
Wetland Indicator Status Definitions OBL = obligate - occurs almost always in wetlands under natural conditions FAC = facultative - equally likely to occur in wetlands or non-wetlands FACU = facultative upland - usually occurs in non-wetlands, but often found in wetlands UPL = obligate upland - Occurs almost always in non-wetlands under natural conditions		

Federal Wetlands

Based on Stantec's professional opinion following an assessment of hydrology, vegetation, and soils, no jurisdictional federal wetlands were documented within the Survey Area. Ephemeral drainages present throughout the site do, however, meet the requirements for jurisdictional waters (see below).

Federal Non-Wetland Waters

Based on Stantec's professional opinion following an assessment of hydrology, vegetation, and soils, approximately 11.31 acres of the Survey Area meet the definition of "waters of the United States" as outlined in 33 CFR Part 328. This assessment is based on Stantec's professional opinion following an assessment of hydrology and the limits of the OHWM. The proposed project would potentially result in permanent impacts to 6.00 acres and temporary impacts to 0.07 acres of federal non-wetland waters within the Project site.

CDFW Waters

Based on Stantec's professional opinion following an assessment of hydrology, presence of bed and bank, and extent of riparian vegetation, approximately 15.36 acres within the Survey Area meet the definition of CDFW jurisdictional waters as outlined in Sections 1600-1617of the CDFW Code. The proposed project would potentially result in permanent impacts to 8.20 acres and temporary impacts to 0.10 acres of CDFW waters within the Project site.

Table 3 Acreage of Potential Jurisdictional Waters and Wetlands within the Survey Area and Summary of Project Impacts

Wetland Waters of the U.S. (acres)			Non-Wetland Waters of the U.S. (acres)			CDFW Jurisdictional Waters (acres)		
Survey Area	**Project Temporary Impact Area**	**Project Permanent Impact Area**	**Survey Area**	**Project Temporary Impact Area**	**Project Permanent Impact Area**	**Survey Area**	**Project Temporary Impact Area**	**Project Permanent Impact Area**
0	0	0	11.31	0.07	6.00	15.36	0.10	8.20

*Survey area is approximately 190 acres.

5.0 SUMMARY AND CONCLUSIONS

The Survey Area supports CDFW jurisdictional waters and USACE non-wetland waters. The braided drainage channels throughout the site exhibited evidence of hydrology and a discernible OHWM and were mapped as jurisdictional non-wetland "waters of the United States" (11.31 acres); the proposed Project would result in approximately 0.07 acres of temporary and 6.00 acres of permanent impacts. Proposed impact to jurisdictional non-wetland "waters of the United States." Using a combination of bed/bank delineation and field observations, 15.36 acres of CDFW jurisdictional waters were identified within the Survey Area; the proposed Project would result in approximately 0.10 acres of temporary and 8.20 acres of permanent impacts to CDFW jurisdictional waters.

The conclusions presented above represent Stantec's professional opinion based on our knowledge and experience with the USACE and CDFW, including their regulatory guidance documents and manuals. However, the USACE and CDFW have final authority in determining the status and presence of jurisdictional wetlands/waters and the extent of their boundaries.

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Appendix A ACREAGE SUMMARY OF JURISDICTIONAL WATERS WITHIN THE SURVEY AREA

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Appendix D HISTORIC SOILS INFORMATION

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A CULTURAL RESOURCES SURVEY OF 640-ACRES PROPOSED FOR ALTERNATIVE ENERGY EXPLORATION, NILAND, IMPERIAL COUNTY, CALIFORNIA

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May 2010

National Archaeological Data Base Information
Type of Study: Cultural Resource Survey
Sites: OS27-1 through OS27-18, CA-IMP-68
USGS Quadrangles: Wister and Iris Wash 7.5'
Area: 640-Acres
Key Words: Positive Survey, Geothermal, Wister, Imperial County, Salton Buffware, Andesite, Rhyolite, Core, Flakes, Sherds, Lithic scatter, Temporary camp, Ceramic scatter

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ABSTRACT

Tierra Environmental Services, Inc (Tierra) has been hired to conduct an archaeological survey of 640-acres of land recently acquired by Ormat Nevada, Incorporated (Ormat) in the Niland area of Imperial County, California. The proposed land use of the area is for the construction of a geothermal power plant, and associated injection and production wells, within 40-acres in the northwest corner of Section 27. Additionally, the remaining portion of Section 27 could be used for a possible solar energy project. Project details are still in the planning phase and the survey of Section 27 was undertaken to provide a constraints analysis based on cultural resources.

The archaeological inventory includes archival and other background studies, in addition to the field survey for the project. The archival research consisted of a literature and records search conducted for the project in addition to an examination of historic maps and historic site inventories. This information was used to identify previously recorded resources and to determine the types of resources that might occur in the survey area.

The intensive survey of the project area was conducted throughout April 6-9, 2010 using parallel transects with 10 to 15 meter intervals. Visibility in the project area was excellent with few hindrances. A total area of 640-acres was surveyed for this project. Eighteen cultural resources (OS27-1 through OS27-18) were identified during the survey. These resources include five prehistoric archaeological sites, three historic can dumps, two trail segments, and eight prehistoric isolates. The prehistoric sites are ceramic and lithic scatters or temporary camps. The isolates include cores, flakes, and potsherds.

By definition, the eight isolates lack qualities and characteristics that would make them eligible for nomination to the California Register and are considered non-significant resources. Additionally, the three can dumps are considered non-significant resources. One of the prehistoric sites has been so disturbed as to have lost its integrity and is thus considered a non-significant resource. No further work is recommended for this resource.

Impacts to the two trail segments and the four intact prehistoric archaeological sites should be avoided. This can be accomplished by establishing a 20m buffer around the sites and flagging the buffer once project construction begins. Based on the surface expression of artifacts and associated features, the four sites may possess the characteristics and qualities necessary for inclusion on the California Register. If impacts to sites OS27-12, OS27-14, OS27-15, and OS-16 cannot be avoided, the sites will need to be tested and evaluated for their eligibility for the California Register.

Additionally, archaeological and Native American monitors should be present for initial earth disturbing activities within the recorded boundaries of sites OS27-12, OS27-14, OS27-15, and OS-16.

I. INTRODUCTION

A. PROJECT DESCRIPTION

Tierra Environmental Services, Inc (Tierra) conducted an archaeological survey of 640-acres of land recently acquired by Ormat Nevada, Incorporated (Ormat) in the Niland area of Imperial County, California (Figure 1). The proposed land use of the area is for the construction of a geothermal power plant, and associated injection and production wells, within 40-acres in the northwest corner of Section 27. Additionally, the remaining portion of Section 27 could be used for a possible solar energy project. Project details are still in the planning phase and the survey of Section 27 was undertaken to provide a constraints analysis based on cultural resources.

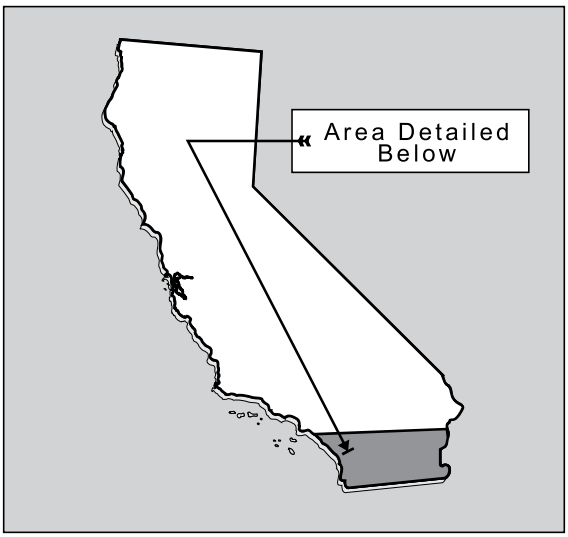
The project area is located in Township 10 South, Range 14 East on the Wister and Iris Wash USGS 7.5' Quadrangles, Section 27 (Figure 2). Cultural resource work was conducted in accordance with the California Environmental Quality Act (CEQA) and it respective guidelines and regulations. The County of Imperial serves as the lead agency for CEQA compliance.

B. PROJECT PERSONNEL

The cultural resource inventory has been conducted by Tierra, whose cultural resources staff meet Federal, State, and local requirements. Mr. Patrick McGinnis served as Principal Investigator for the project. Mr. McGinnis has an MA in Archaeology and Heritage from the University of Leicester and also meets the Secretary of the Interior's standards for qualified archaeologists. The survey of the project area was conducted by Mr. McGinnis, Ms. Hillary Murphy, Dr. Jackson Underwood, Ms. Eliza McMichael, Mr. James Amick, Mr. Aaron Cruz, and Mr. Martin Nienstadt during April 6-9, 2010. Resumes of lead project personnel are included in Appendix A.

C. STRUCTURE OF THE REPORT

This report follows the State Historic Preservation Office’s guidelines for Archaeological Resource Management Reports (ARMR). The report introduction provides a description of the project and associated personnel. Section II provides background on the project area and previous research. Section III describes the research design and survey methods while Section IV describes the inventory results. Section V provides a summary and recommendations.



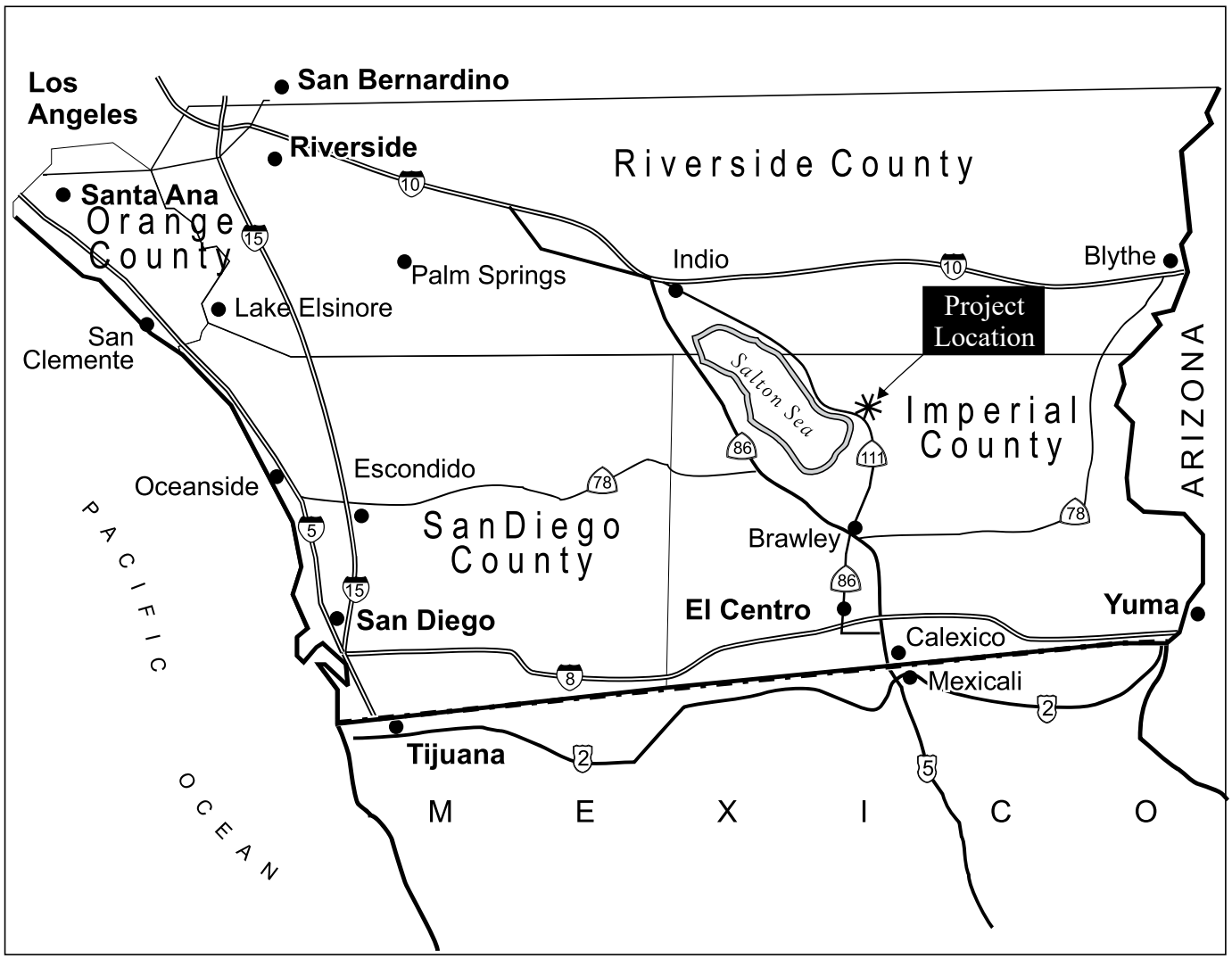
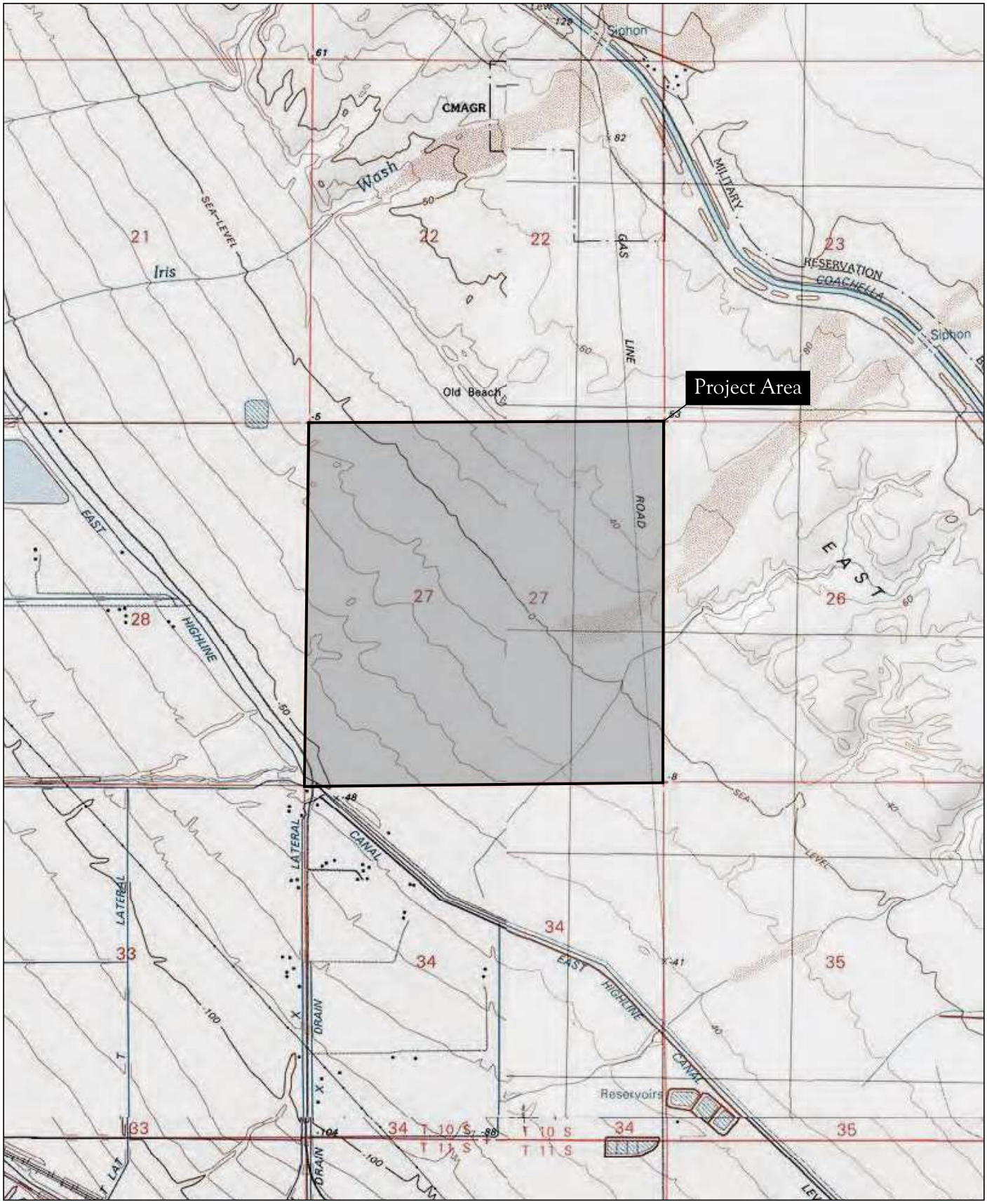


Figure 1
Regional Location Map

TIERRA
ENVIRONMENTAL SERVICES

PC ORIGINAL PKG



USGS 7.5' Quadrangle: Iris Wash and Wister, CA

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F E E T

Figure 2. Project Location Map

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ENVIRONMENTAL SERVICES

II. NATURAL AND CULTURAL SETTING

The following environmental and cultural background provides a context for the cultural resource inventory.

A. NATURAL SETTING

The project area is located in the Wister area of Imperial County, approximately 5.5 miles east of the Salton Sea. It is on the eastern side of the San Jacinto Mountains on the margin of the Salton Trough in the Coachella Valley. The landscape of the project area is largely a product of the region's geology.

During the late Cretaceous (>100 million years ago) a granitic and gabbroic batholith was being formed under and east of the project area. This batholith was uplifted and forms the granitic rocks and outcrops of the San Jacinto Mountains. At about the same time as these mountains were being uplifted, the Salton Trough was dropping, reaching points well below sea level. The Salton Trough had been slowly filling with sediments from the adjacent mountains and from the Colorado River, which shifted on its delta occasionally forming freshwater Lake Cahuilla which stretched more than 60 miles long in the lowest portion of the basin. Lake Cahuilla was a resource that had profound effects on the Cahuilla, Kamia and other groups in the surrounding region. This lake probably last existed in the 1650s (Schaefer 1994). It supplied the southern Coachella Valley and the Imperial Valley with not only water but other lacustrine resources such as freshwater mussels, waterfowl, and fish. Native Americans in the region rapidly took advantage of these resources designing “U” shaped fish traps along the shoreline and leaving behind large deposits of mussel shell as well as bird and fish bone (Wilke 1978). Cahuilla oral history tells of both the filling and drying of this lake and its important influence on the region. Even without the support of direct flow from the Colorado River, the Salton Basin, Borrego, and other dry lake basins would sometimes contain seasonal shallow ponds supplying additional water resources (Bean 1972).

The project area is located on what was once the bottom of Lake Cahuilla and includes the margins of the eastern ancient shoreline. Within the project area, the terrain gently slopes down to the southwest, with an elevation of between 10 feet above and 50 feet below mean sea level. The project consists of Holocene age alluvium. Soils are made up of fine grained silts and sand. The soils within the project area belong to the Niland soil series and include Niland gravelly sand, Niland gravelly sand wet, and Niland Imperial complex wet. Niland series soils are moderately well-drained, non-saline to moderately saline, and are located primarily in basins. Niland soils are found in alluvium derived from mixed sources (USDA 1980).

The project area is currently undeveloped open desert surrounded by reclaimed lands turned into agricultural fields. Road construction, off-road activity and the construction of the Coachella Canal have all disturbed the project area to varying degrees. In previously disturbed survey areas, the vegetation probably consisted of alkali sink scrub vegetation. This community is noted

for the presence of fleshy halophytes (*Allenrolfea*, *Salicornia*, *Atriplex*, and *Suaeda*), Salt Grass (*Distichlis*) and Mesquite (*Prosopis*) (Munz 1974).

Animal resources in the region include occasional deer, fox, skunk, bobcats, coyotes, rabbits, and various rodent, reptile, and bird species. Small game, dominated by rabbits and reptiles, is relatively abundant.

B. CULTURAL SETTING

Paleoindian Period

The earliest well documented prehistoric sites in southern California are identified as belonging to the Paleoindian period, which has locally been termed the San Dieguito complex/tradition. The Paleoindian period is thought to have occurred between 9,000 years ago, or earlier, and 8,000 years ago in this region. Although varying from the well-defined fluted point complexes such as Clovis, the San Dieguito complex is still seen as a hunting focused economy with limited use of seed grinding technology. The economy is generally seen to focus on highly ranked resources such as large mammals and relatively high mobility which may be related to following large game. Archaeological evidence associated with this period has been found around inland dry lakes, on old terrace deposits of the California desert, and near the coast. The San Dieguito complex, as seen in the desert region, is generally comprised of lithic scatters and rock features associated with activities of the hunting economy. Such resources are typically located on desert pavement terraces or along ancient shorelines or major drainages (Apple et al 1997).

Early Archaic Period

Native Americans during the Archaic period had a generalized economic focus on hunting and gathering. In many parts of North America, Native Americans chose to replace this economy with others based on horticulture and agriculture. Southern California economies remained largely based on wild resource use until European contact (Willey and Phillips 1958). Changes in hunting technology and other important elements of material culture have created two distinct subdivisions within the Archaic period in southern California.

The Early Archaic period is differentiated from the earlier Paleoindian period by a shift to a more generalized economy and an increased focus on use of grinding and seed processing technology. At sites dated between approximately 5,000 and 1,500 years before present (B.P.), the increased use of groundstone artifacts and atlatl dart points, along with a mixed core-based tool assemblage, identify a range of adaptations to a more diversified set of plant and animal resources. Variations of the Pinto and Elko series projectile points, large bifaces, manos and portable metates, and core tools are characteristic of this period. However, archaeological evidence for the Archaic period is minimal throughout the desert region and major changes in technology within this relatively long chronological unit appear limited. Several scientists have considered changes in projectile point styles and artifact frequencies within the Early Archaic

period to be indicative of population movements or units of cultural change (Moratto 1984), but these units are poorly defined locally due to poor site preservation.

Late Prehistoric Period

Around 2,000 B.P., Takic-speaking people from the Great Basin region began migrating into southern California, marking the beginning of what is called the Late Prehistoric period in the southern California region. The Late Prehistoric period in this portion of Imperial County is recognized archaeologically by smaller projectile points, the replacement of flexed inhumations with cremation, the introduction of ceramics, and an emphasis on inland plant food collection and processing, especially acorns and mesquite (Kroeber 1925). Inland semi-sedentary villages were established along major water courses and around springs, and montane areas were seasonally occupied to exploit mesquite, acorns, and piñon nuts. Mortars for mesquite and acorn processing increased in frequency relative to seed grinding basins.

The most numerous of the archaeological resources in the Imperial Valley date to the Late Prehistoric period. The majority of sites recorded in the region have been small temporary campsites related to processing food resources or manufacturing tools. Larger habitation sites were less common, but displayed a wider range of activities and longer periods of occupation (Jefferson 1977). Typical artifacts at these sites include Desert Side-notched and Cottonwood Triangular projectile points and Lower Colorado buffware and Tizon brownware ceramics. Lithic artifacts are typically made from chert, volcanic, or quartz material.

Ethnography

The Kamia, or Desert Kumeyaay, are believed to have occupied the project area during this period. However, it is close to the territorial boundary of the Desert Cahuilla and it is possible that both groups may have used the area.

Kamia

The Kamia are a subgroup of the Yuman family of the Hokan stock, and are therefore closely related linguistically to the Mohave, Quechan, Maricopa, Paipai, Cocopa and Kiliwa (Kendall 1983:5). Group size and the degree of social interaction varied over the course of an annual cycle. The basic unit of production was the family, which was capable of great self-sufficiency, but Kamia/Kumeyaay families, like other hunter-gatherers, moved in and out of extended family camps or villages opportunistically as problems or opportunities arose. Thus, whereas single families occasionally exploited low-density, dispersed resources on their own, camps or villages of several families formed at other times, particularly when key resources (such as water) were highly localized.

Going beyond the basic social unit of the family, the Kamia were organized by some form of descent system. From the available ethnographic data it is not immediately obvious as to whether they were organized into lineages or clans. Indeed, their features of social organization

appear to have shared some qualities of both systems, and it may be speculated that the society had begun evolving from a lineage system to a clan system prior to the time of Western contact. In any case, the Kamia traced their descent patrilineally (i.e., through one's father), were exogamous at the level of the descent group (i.e., one had to marry outside one's own lineage or clan), and practiced patrilocal residence (i.e., a married woman lived with her husband's father's relatives). Descent groups apparently "owned" land and certain other resources. According to Kroeber, "It would appear that each 'clan' owned a tract and that each locality was inhabited by members of one clan, plus their introduced wives" (1925:720).

Regarding other resources, Spier observed that some "gens" (i.e., clans) owned patches of certain trees and "each gens owned one or more eyries from which eaglets were taken for use in the mourning ceremony" (1923:307). Apparently, however, resource ownership did not extend to the oak groves in the mountains (ibid), which probably reflects the extreme importance placed upon this resource for the adaptation and survival of the entire society. Gifford reported that the Kamia had no clan chiefs and recognized a tribal chief like the Quechan, however this form of leadership may have been introduced after European contact (1931: 50-51).

Important plant foods exploited from the Kamia's diverse habitat included mesquite and screw beans, pinion nuts, and various cacti. Important but less utilized plants included various seeds, wild fruits and berries, tubers, roots, and greens. Women were primarily responsible for the collection and preparation of vegetal foods.

Cahuilla

The Cahuilla are a subgroup of the Takic family of the Uto-Aztecan stock, and are therefore closely related linguistically to the Gabrielino, Luiseño, and Serrano. The extreme diversity of Cahuilla territory nearly reflected the range of environmental habitats allowed in inland southern California. Topographically, their territory ranged from the summit of the San Bernardino Mountains, in excess of 11,000 feet, to the Salton Sink, well below sea level. Ecological habitats included the full range of mountains, valleys, passes, foothills, and desert area. Villages were typically situated in canyons or on alluvial fans near water and food resources, and a village's lineage owned the immediately surrounding land (Bean 1978). Well-developed trails were used for hunting and travel to other villages. Village houses ranged from brush shelters to large huts 15-20 feet long.

Important plant foods exploited from the Cahuilla's diverse habitat included mesquite and screw beans, pinyon nuts, and various cacti. Important but less utilized plants included various seeds, wild fruits and berries, tubers, roots, and greens. Women were instrumental in the collection and preparation of vegetal foods.

Cahuilla culture and society remained stable during the period of missionization on the coast. It was not until the American period that Cahuilla were heavily displaced. The introduction of European diseases, greatly reduced the native population of southern California and further disrupted the way of life of the native inhabitants.

Instrumental in the subsistence of the Kamia and the Cahuilla was the presence in their territory of Lake Cahuilla. Lake Cahuilla was a freshwater lake created when the Colorado River changed course from the delta into the Salton Sink and covered much of the Imperial Valley. Based on the course of the Colorado River, the lake would advance and recede numerous times throughout prehistory. When the lake receded, prehistoric people followed the receding shoreline, leaving remains of their habitation as they went. The lake would have provided the opportunity for nearly year round exploitation of floral and faunal resources and research has shown a heavy representation of shellfish, fish, aquatic birds and plant materials from sites excavated along the edge of the lake (Moratto 1984: 407). According to Cleland et al. (1997):

> The most widely accepted chronology for the stands of Lake Cahuilla (Waters 1983) identifies a series of four lake stands occurring over the past 1,500 years. The first is thought to have begun at about A.D. 700 and ended around A.D. 940, with full desiccation. The second interval is not directly dated but based on estimated sedimentation and evaporation rates is inferred to have occurred sometime between A.D. 940 and 1210, again with complete desiccation. The third interval is thought to have begun around A.D. 1210, with a partial recession to about -130 feet below sea level at about A.D. 1430. At this time the lake began to fill again, initiating the fourth interval; this interval is estimated to have terminated around A.D. 1540 based on sedimentation and evaporation rates, as well as the lack of any direct observation of the lake by Spanish explorers traveling through the area after that time. More recently, a fifth interval has been proposed based on archaeological data from a site on a recessional shoreline. This is believed to have been a partial infilling occurring sometime between A.D. 1516 and 1659 (Schaefer 1994).

The overall picture of subsistence around Lake Cahuilla suggest that the Kamia and Cahuilla, along with possibly some of the Colorado River peoples are responsible for the sites located along the lake stand shorelines. Sites excavated on the shoreline tend be shallow with low artifact quantities and diversity, and are indicative of temporary occupation. It has been suggested that groups came down from the mountains or canyons to the west and seasonally collected and processed fish and other fauna onsite before moving on to other resource locations (Apple et al. 1997).

The extent to which the Kamia practiced agriculture at the time of European contact has not been established. Gifford (1931) felt that agriculture, which had been well established among the Colorado River groups at the time of Western influence, had diffused into the Imperial Valley and was practiced by all of the Kamia lineages. Similarly, Lawton and Bean (1968) have suggested that certain Cahuilla groups cultivated corn, beans, squash and melons, like the neighboring Colorado River tribes.

Kamia culture and society remained stable during the period of missionization on the coast. It was not until the American period that Kamia were heavily displaced. The introduction of European diseases greatly reduced the native population of southern California and further disrupted the way of life of the native inhabitants.

Historic/Contact Period

Cultural activities within Imperial County between the late 1700s and the present provide a record of Native American, Spanish, Mexican, and American control, occupation, and land use. An abbreviated history of the region is presented for the purpose of providing a background on the presence, chronological significance, and historical relationship of cultural resources within the county.

Native American control of the southern California region ended in the political views of western nations with Spanish colonization of the area beginning in 1769. However, Native American control of the majority of California did not end until several decades later. In southern California Euroamerican control was firmly established by the end of the Garra uprising in the early 1850s (Phillips 1975).

The Spanish Period (1752-1821) represents a period of Euroamerican exploration and settlement. The first Europeans to arrive in this region were the Spanish, who traveled along the California Coast by ships establishing settlements and missions to secure their hold on California. Using these same ships, they traveled around the *Golfo de California* and up the Colorado River, establishing additional settlements at inland locations, such as Tubac south of modern Tucson. Communication between the coastal settlements and those in modern Arizona were slow due to the long ocean journey and the Spanish decided to pursue an a shorter and quicker overland route. In 1772, Pedro Fages, *Commandante* of California, pursued several deserters into the arid territory from his headquarters in San Diego. Fages was perhaps the first white person to see the Imperial Valley. At about the same time, Juan Bautista de Anza was *Commandante* of the Spanish settlement of Tubac. In 1774, Anza received permission to explore the Gila and Colorado rivers in search of a trans-desert route. His journey from Tubac to the San Gabriel Mission in California took approximately three months. Portions of Anza's route were used for mail delivery by the Spanish and ran through Imperial Valley to what is now Riverside County and beyond. However, hostilities broke out between the Spanish and Colorado River tribes in 1781 and the route was abandoned (Nixon 2010). The cultural and institutional systems established by the Spanish continued beyond the year 1821, when California came under Mexican rule. During this period the Native American populations of the Colorado Desert remained relatively unaffected due to their isolation from the coast (Bean 1972).

The Mexican Period (1821-1848) includes the retention of many Spanish institutions and laws. During this period the Romero Expedition passed through Cahuilla territory looking for a new route to the Colorado River. They provided some of the earliest records of Cahuilla culture. The mission system was secularized in 1834 which dispossessed many Native Americans and increased Mexican settlement. After secularization, large tracts of land were granted to individuals and families and the rancho system was established. Cattle ranching dominated other agricultural during the early part of this period. The Pueblo of Los Angeles was established during this period and Native American influence and control greatly declined. The Mexican

Period ended when Mexico ceded California to the United States after the Mexican-American War of 1846-48 (Nixon 2010).

The American Period (1848-Present) began following the Mexican-American War, the U.S. assumed control of the area. Not much changed with transfer of governmental power until 1849 when gold was discovered in California. The ensuing gold rush brought an estimated 70,000 people through the desert on their way to the gold fields of northern California. Many of these people traveled along the Southern Emigrant Trail which itself was an appropriation of older Native American trails. Afterwards, gold strikes in the eastern portion of Imperial County during the early 1850s attracted some mining interests. However, few settled in the Imperial Valley.

In the 1870s, interest in the area began to pick up as the U.S. Government sent out surveying parties to investigate the potential agricultural uses of the Colorado River. It was during this time that Southern Pacific Railroad completed its line through the desert to Yuma. During the 1880s and 1890s, Imperial Valley was used as grazing lands for herds that would feed on grasses grown in areas fed by overflow from the Colorado River. However, there were few wells in Imperial Valley and most of the water had to be imported by rail from Coachella Valley. It was not until the shortage of water in the valley was overcome that white settlement in the valley began to rise (Sperry 1975). As early as the 1850s, plans to irrigate the valley using water from the Colorado River had been developed but it wasn't until the turn of the 20th century that work was begun on the Alamo Canal. The Alamo Canal coursed along the U.S-Mexico border, crossing into Mexico then back into the U.S. This required cooperation and permission from both nations' governments. From the completion of the Alamo canal in 1902 to the year 1905, the population of Imperial Valley jumped from a few hundred to 12,000 and arable land increased from 1,500 acres to 67,000 acres (City of El Centro 2010). The new water source helped to establish cities such as El Centro, Imperial, Brawley and Niland.

The Salton Sea was created in 1905 when the Colorado River breached an Imperial Valley diversion channel and began to fill the Salton Sink. Although, catastrophic for some of the residents of the valley, it created a new source of water for residents of the valley. Once the breach was closed in 1907, the population of the valley continued growing. Political instability in Mexico necessitated the construction of another canal built completely on United States soil to ensure a reliable source of water to the farmers of the Imperial Valley. The All-American canal was built to meet this need in years from 1934-1940. The completion of the All-American canal and its four tributaries, the Coachella Canal, East Highline Canal, Central Canal, and Westside Main Canal finally established a stable source of water that would reach throughout the valley. The Coachella Canal, completed in 1949, runs adjacent to portions of the project area. The construction of these canals allowed for the expansion of agriculture and reclamation of the land. Agriculture continues to dominate the region's land use, including neighboring sections.

C. PRIOR RESEARCH

The archaeological inventory includes archival and other background studies, in addition to Tierra's field survey for the project. The archival research consisted of a literature and records search conducted for the project in addition to an examination of historic maps, and historic site inventories. This information was used to identify previously recorded resources and to determine the types of resources that might occur in the survey area. The methods and results of the archival research are described below.

The records search indicated that 10 archaeological studies have been conducted within a one-mile radius of the current project. Five of those studies covered a portion of the project area. Four of these were regional overviews of the general area and only one, Sowell 2005, surveyed a portion of Section 27. This survey covered less than five percent of the project area. See Table 1 for a list of these investigations.

Eighteen previously recorded resources have been identified within a one-mile radius of Section 27. This includes CA-IMP-68, which was originally recorded as site C-20 in 1920 and 1939 by Malcolm Rogers. Since that time seven other resources (CA-IMP-118, CA-IMP-6659, CA-IMP-7866, and CA-IMP-8479 through 8482) were identified nearby and subsumed into the record for CA-IMP-68. The site is located at the edge of West Mesa along the old shoreline of Lake Cahuilla and extending west and below sea level. Rogers identified the resource as a village site, ¾ of a mile long along the 10-foot contour line. The site included housepits and freshwater mussel shell deposits. In 1951 Stuart Peck, using Roger's information, further recorded the site. Cremations were located within the site's boundaries along projectile points, knives, scrapers, pottery, shell, bone, metates, manos and painted pebbles. The artifacts were collected and stored at the San Diego Museum of Man. It appears that the site forms were updated in the 1990s using information from a 1951 update to fill in some of the data that was missing when Rogers first recorded the site. The records show the site to be 1400m long east/west and 800m north/south with the sea level contour being its furthest extent west. The site was identified as nearly destroyed at that time and later forms record this as well. CA-IMP-118 is the same as CA-IMP-68 but was erroneously given a new trinomial. It appears that the CA-IMP-68 designation was for Peck's 1951 update and CA-IMP-118 was based on Roger's notes for the same site. Both sets of site forms use the same data with the records from Peck being more complete. For example Roger's did not note the mussel shell midden or cremations that Peck found in 1951. However, the location mapping of the site on the USGS map is different. Neither of the maps are from the original recording of the site but appear to be boundaries based on the field notes and assigned by latter researchers. The remaining sites subsumed under CA-IMP-68 (sites CA-IMP-6659, CA-IMP-7866, and CA-IMP-8479 through 8482) are located in Section 26. With the exception of CA-IMP-6659, the sites were recorded during a BLM survey of land which was transferred to the County of Imperial for the currently operating Niland Landfill in 1999. The sites are comprised of individual sparse lithic and ceramic scatters.

A sensitivity map for cultural resources, prepared by Mr. Jay Von Werlhof in 1990 and presented in the County of Imperial General Plan, indicated that areas along the base of East Mesa to the East Highline Canal are very sensitive for cultural resources. Historic research included an examination of a variety of resources. The current listings of the National Register of Historic Places were checked through the National Register of Historic Places website. The California Inventory of Historic Resources and the California Historical Landmarks were also checked for historic resources.

A letter was sent to Mr. David Singleton at the Native American Heritage Commission to request a search of the sacred lands in regards to the project area on May 11, 2010. Mr. Singleton responded on May 24, 2010 that no previously identified cultural resources were known to be in the vicinity of the project area. He included a list of 11 groups or individuals associated with local Native American Tribes who may have information regarding cultural resources in the area. It is recommended that once specific project locations have been defined that letters to the 11 groups or individuals should be sent out notifying them of the project. The letter to Mr. Singleton and his response are included in Appendix B.

Table 1. Previously Recorded Cultural Investigations Within a One-Mile Radius of the Project Area

Date	Title	Author
1981	Volume I - Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3 (49MW) Environmental Impact Report Draft	Westec
1981	Final Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3 (49MW) Environmental Impact Report Comments and Responses	Westec
1981	Final Salton Sea Anomaly Master Environmental Impact Report and Magma Power Plant #3 (49MW) Environmental Impact Report Volume I	Westec
1983	Archaeological Examinations of the Republic Geothermal, Inc., 49 MW Plant Site Near the Salton Sea	Won Werlhof
1999	Draft Historic and Archaeological Resources Protection (HARP) Plan for the Chocolate Mountain Aerial Gunnery Range, Imperial County, CA	McCorkle-Apple, Cleland
2001	Draft Northern & Eastern Colorado Desert Coordinated Management Plan and Environmental Impact Statement - An Amendment to the California Desert Conservation Area Plan 1980 and Sikes Act Plan with the California Department of Fish and Game	BLM, CA DFG
2002	Evaluation of 24 FARP Archaeological Sites and Assessment of Training Effects, Chocolate Mountains Aerial Gunnery Range, Imperial County, CA	McCorkle-Apple, Deis
2003	Archaeological Survey of the Sniper Range at Camp Billy Machen Chocolate Mountains Aerial Gunnery Range, Imperial County, CA	Underwood
2003	A Class III Cultural Resource Inventory and Evaluation for the Coachella Canal Lining Project: Prehistoric and Historic Sites Along the Northern Shore of Ancient Lake Cahuilla, Imperial and Riverside Counties, CA	Schaeffer et al.
2005*	SCG Class II Project: Pipeline Erosion Repair, Niland, Imperial County	Sowell
* Investigations encompassing portions of the current effort.		

Table 2. Previously Recorded Cultural Resources Located Within a One-Mile Radius of the Project Area

Site No.	Description	Recorder	CEQA Eligibility
CA-IMP-00068	Habitation Site: Cremation, Groundstone, Lithic-Pottery Scatters, Shell, Painted Pebbles, Points, Hearths, Slabs	Rogers, Peck	N
CA-IMP-00118	Subsumed under CA-IMP-00068, Shell Midden and House Pits	Rogers	N
CA-IMP-01142	Trail and Lithic Scatter	Ritter	U
CA-IMP-06506	Lithic Scatter	Von Werlhof	U
CA-IMP-06507	Occupation Site	Von Werlhof	U
CA-IMP-06653	Ceramic Scatter	Simmons	N
CA-IMP-06654	Occupation Site	Simmons	N
CA-IMP-06655	Lithic and Ceramic Scatter	Simmons	N
CA-IMP-06656	Lithic Scatter	Simmons	N
CA-IMP-06657	Ceramic Scatter	Simmons	U
CA-IMP-06658	Temporary Campsite	Simmons	N
CA-IMP-06659	Rock Circle with sherd and lithic, Subsumed under CA-IMP-00068	Simmons	U
CA-IMP-06889	Isolate: Lithic	Posner, Broeker	N
CA-IMP-07866	Lithic Scatter, Subsumed under CA-IMP-00068	Oxendine, Hangan	U
CA-IMP-08479	Lithic Scatter, Subsumed under CA-IMP-00068	Oxendine, Hangan	U
CA-IMP-08480	Lithic Scatter, Subsumed under CA-IMP-00068	Oxendine, Hangan	U
CA-IMP-08481	Lithic Scatter, Subsumed under CA-IMP-00068	Oxendine, Hangan	U
CA-IMP-08482	Lithic Scatter, Subsumed under CA-IMP-00068	Oxendine, Hangan	P
U - Unknown P - Possibly Eligible N - Not Eligible O - On Register			

III. RESEARCH DESIGN AND METHODS

A. SURVEY RESEARCH DESIGN

The initial goal was to identify any cultural resources located within the project area so that effects of the project could be assessed. To accomplish this goal, background information was examined and assessed, and a field survey was conducted to identify cultural remains. The proximity to important water resources and an ethnographic village suggest the potential for prehistoric Native American cultural resources. Both historical and prehistoric resources were the focus of the field survey.

B. SURVEY METHODS

The survey of the project area was conducted by Mr. Patrick McGinnis, Ms. Hillary Murphy, Dr. Jackson Underwood, Ms. Eliza McMichael, Mr. James Amick, Mr. Aaron Cruz, and Mr. Martin Nienstadt during April 6-9, 2010. An intensive survey using parallel transects with 10 to 15 meter intervals was conducted throughout the project area. Visibility in the project area was excellent with few hindrances. Vegetation in the project area was sparse and the ground surface was open with nearly 100 percent visibility. Much of the project area has been disturbed particularly in the eastern half of Section 27, but numerous areas have been previously cut by bulldozers or grubbed and vegetation has only recently begun to re-establish itself. Two GPS units were running during the entire survey and used to maintain transect integrity and record cultural resources locations.

IV. SURVEY RESULTS

A total area of 640-acres was surveyed for this project. Eighteen cultural resources were located during the survey. These resources include five prehistoric archaeological sites, three historic can dumps, two prehistoric trails, and eight prehistoric isolates. The prehistoric sites are ceramic and lithic scatters or temporary camps. The isolates include cores, flakes, and potsherds. Full descriptions of the resources are provided below. Figure 3 illustrates the location of the resources on a USGS topographic map.

Isolates

OS27-1
This resource is an isolated buffware sherd measuring approximately 9.5cm by 7.8cm and 0.4cm thick. The sherd is somewhat reddish in color and was located in a relatively flat and open gravelly wash with creosote scrub habitat.

OS27-2
This resource consists of two isolated pot sherds separated by approximately 25cm that exhibit fire-clouds on their exterior surfaces. The artifacts appear to be from the same vessel. The sherds are reddish in color and located in a relatively flat and open gravelly wash with creosote scrub habitat.

OS27-3
OS27-3 is an isolated chunk of obsidian. The rock does not appear to have been altered but is a manuport brought in from off-site. The obsidian is the Obsidian Butte variety and Obsidian Butte itself is located a little over 10 miles to the southwest.

OS27-5
An isolated potsherd, OS27-5 is small measuring 2.9x2.1x.4cm. It doesn't appear to have been used for cooking as there is no evidence of carbon on its interior. It is located on a gravelly wash just east a dirt access road dividing Sections 27 and 28.

OS27-8
OS27-8 is an isolated flake of reddish basalt. The flake appears to have been struck during the primary reduction phase as it has cortex present on the distal end. It is possibly the result of a cobble test or geofact. The artifact measures 8.4 cm by 7 cm by 3.6 cm thick.

OS27-11
This resource is an isolated jasper core fragment. The fragment measures approximately 2.7 cm by 1.8 cm. The core fragment is located on an alluvial fan with open creosote scrub habitat.

Sites

IMP-68/118

CA-IMP-68/118 no longer appears to exist within Section 27. The collection of the site by Rogers coupled with earthmoving activities related to the construction of the Niland Landfill and Gas Line Road, are likely to have destroyed most, if not all of the site. Roughly, 300 to 500 feet on either side of Gas Line Road has been heavily disturbed and there are numerous large push piles, dump piles of construction materials, cuts, and graded areas adjacent to the road. Based on site record information, the main concentration of the original site was roughly in the area where the Niland Landfill now sits. Additionally, it appears that whoever mapped the site did so based on landform contours, not the actual location of artifacts or midden soils. It appears more likely that the mapped location of the site was based on a recollection of the location rather than mapped in the field. Because of the richness of the site, despite Roger's collecting the site surface in the 1920s, one would still expect to find a number of artifacts, midden soils, and fire-affected rock that would have been exposed in the intervening 70-80 years. Yet, no such evidence of extended long-term occupation was found within recorded sites boundaries located in Section 27. Therefore, it can only be concluded that the portion of the site within Section 27 has either been destroyed or was incorrectly mapped by earlier researchers. Figure 4 shows the disturbed areas within Section 27 along with the boundary of CA-IMP-68 with the section.

During the current effort the survey of the site located three ceramic scatters (OS27-12, OS-14 and OS-17), two isolated potsherds (OS27-9 and OS27-13) and two can dumps (OS-27-10 and OS27-18) within the previously identified boundaries of CA-IMP-68/118. However, none of these resources appear to be associated with one another as a larger site and appear to be independent activity areas. The resources do not appear to be remnants of a previously collected village site and do not possess any midden or other evidence of extended occupation. The sites appear to be short-term campsites at best. The can dumps are not considered part of CA-IMP-68/118, as it was recorded as a prehistoric site. The can dumps are obviously unrelated but within the previously recorded boundaries of CA-IMP-68/118. The remaining resources are discussed with their temporary number designations in the paragraphs immediately below.

OS27-9

This artifact is an isolated buffware body sherd. The sherd has been very eroded by the wind with fire-clouding on the exterior still visible. It was located in a gravelly wash.

OS27-12

This resource is comprised of a ceramic scatter. Twelve brownware sherds, seemingly from the same vessel, are located within four meters on an East/West axis. All of the sherds are body pieces ranging from the smallest (2.3x1.5cm) to the largest (6x4.5cm). None of the sherds are fire-affected and all have a medium to coarse grain temper. This site is located on a gravelly wash among a creosote scrub community.

OS27-13
OS-13 is an isolated buffware body sherd. The sherd is reddish in color and measures 6.7cm by 4cm by 1.1cm thick. The artifact was located in an area of open creosote scrub.

OS27-14
This resource is a large ceramic scatter located on creosote scrub habitat in an open floodplain. The site location is flat. The site contains over 100 sherds that are predominately buffware with a few brownware-like sherds as well. A single rhyolite flake and some burned sandstone were also present within the site's boundaries. Approximately 14 of the sherds were rim sherds and one of these had finger-nail indentations incised on the edge. The site measures approximately 30m by 40 m.

OS27-17
This site is a scatter of seven brownware pot sherds and two buffware sherds along with a few pieces of burned sandstone. The site is located in a very disturbed area west of the Niland landfill and the deposition of the artifacts is secondary as they sit atop a push pile.

Previously Unrecorded Sites

OS27-4
This resource is a 10 m segment of a prehistoric trail. The trail is approximately 45 cm wide and runs along an east/west axis in a gravelly wash. The rest of the trail appears to have been washed away in the immediate area.

OS27-6
This resource is a light scatter of historic cans and metal fragments extending approximately ten feet in diameter. Specific artifacts include condensed milk cans with side seams (3+), hole in top cans, a metal strap, a leaf spring, and handle. Based on the diagnostic features of the artifacts the site dates to somewhere between the 1930s and the 1950s. The site is located immediately east of the dirt access road that divides Section 28 from 27 at the southern end.

OS27-7
This resource is a 50 m segment of what appears to be a prehistoric trail but maybe more modern in age. The trail is approximately 45 cm wide and runs along an east/west axis along the floodplain in creosote scrub habitat. An ephemeral drainage surrounds the segment and the rest of the trail appears to have been washed away in the immediate area.

OS27-10
This resource consists of a can dump extending 11 feet N/S x 15 feet E/W. The site is located approximately 10 meters northwest of a large drainage and 70 meters west of Gas Line Rd. The historic refuse deposit consists of 30 + vent-hole, sanitary, condensed milk cans. Some had been opened with a church-key, others by a knife. Crimped ends and seams were evident on most of the cans. Additionally, condiment bottles, a ceramic whiteware cup, a sardine can, bottle glass

fragments, and Lakeshore honey bottle fragments with a honeycomb pattern on them were also located on-site.

Fragments of bottles with the Glass Containers Corp. maker's mark were located on site. The company was originally The Long Beach Glass Co. but changed names after being purchased in 1936 to Glass Containers Corp. The company moved from southern California to the San Francisco bay area in 1951. The particular maker's mark found at this site dates from 1945 to 1971. Maywood Glass Co. fragments were also located at this site. Dating from 1930 to 1961, this particular mark denotes fabrication circa 1940 out of Compton, California.

OS27-15

This site is prehistoric camp spread out along finger ridges left behind in the silt floor of Lake Cahuilla as it last receded. These ridges are steep sided, narrow on the top (less than ten meters wide), generally less than 10 meters high and may have multiple branches. OS27-15 runs along three connected branches. The site contains at least 75 buffware sherds and 36 brownware sherds. Of the buffware sherds, 16 are rim fragments. The rim sherds represented a number of vessel types including plate/bowls, wide-mouth ollas, and narrow-mouth ollas. Lithic tools on-site include at least four cores and a utilized flake. Over 125 flakes were located within site boundaries; the largest amount being secondary flakes followed by tertiary, and shatter indicating that materials were being brought to the site after primary reduction had already taken place. The lithic materials include a variety of cherts, metavolcanics, chalcedony, basalt, and quartzite. There are also three cleared circles under 2 meters in diameter in the central and most densely concentrated portion of the site. A fourth cleared circle of the same approximate size is located at the far north end of the site. The cleared circles are, as the name implies, circular areas where the gravels on the surface have been cleared away and form a boundary on the outside of the circle.

OS27-16

This site is located on a finger ridgeline, almost identical to OS27-15, which is located 100 meters to the east. The site is similar to OS-15 in the types and dispersal of artifacts. However, OS27-16 has no cleared circles and less range and density of artifacts than at OS27-15. A total of 75 buffware sherds were identified at the site including three rim sherds. No brownware sherds were identified. Lithics included two cores, an edge modified flake and 23 flakes. The flakes are primarily rhyolite (n=11) and red chert (n=8). Secondary flakes accounted for 15 out of the 23 flakes with primary and tertiary flakes accounting for four each. At the north end of the site a rock ring exists consisting of approximately 25-30 small tabular sandstone rocks set on end and measuring approximately 15cm high. The ring has an inner diameter of approximately 1m and is 2-3 courses of stone thick. The stones are not very embedded into the ground which denotes that the ring may be have been made at a later date than the rest of the site.

OS27-18

This resource is a trash dump of historic materials with more modern trash mixed in. The site measures 17 feet by 45 feet. Artifacts on site include aqua bottle glass, clear bottle glass, tin

sardine cans, solder drop cans, condensed milk cans and sanitary cans. At least 50 cans are present. Some, but not all, of the cans have been opened with church-keys. Other refuse includes oil filters, bearings, engine bolts, aerosol cans and rectangular one-quart solvent cans. The site appears to date to sometime after the Second World War and before the late-1960s.

Figure 3. Cultural Resources Within the Project Area Map
(Confidential Figure; Bound Separately)

Figure 4 Disturbed Areas Within Project Area
(Confidential Figure; Bound Separately)

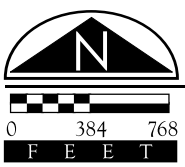

Figure 4. Disturbed Areas Within the Project Area

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V. SUMMARY AND RECOMMENDATIONS

A. REGULATORY BACKGROUND

Cultural resource work was conducted in accordance with the California Environmental Quality Act (CEQA) and it respective guidelines and regulations. The County of Imperial serves as the lead agency for CEQA compliance. The importance of cultural resources under State law as defined in CEQA has been refined to coincide with those of the California Register. The criteria used to evaluate cultural resources are specified by recent revisions to CEQA. Specific to cultural resources is Section 15064.5. "Determining the Significance of Impacts to Archeological and Historical Resources."

This section introduces the term "historical resources" defining them as:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4850 et seq.).

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(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 may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

B. SUMMARY

Tierra conducted an archaeological investigation of 640 acres proposed for geothermal and solar energy projects. The survey identified eight isolated artifacts, three historic can dumps, three prehistoric ceramic scatters, two prehistoric trail segments, and two temporary camp sites. A previously recorded site CA-IMP-68/118 was not specifically identifiable within the project area; however, two of the isolates, two of the can dumps, and three of the light ceramic scatters were identified within the previously recorded boundaries of the site.

C. RECOMMENDATIONS

By definition, the eight isolates (OS27-1, OS27-2, OS27-3, OS27-5, OS27-8, OS27-9, OS27-11, and OS27-13) lack qualities and characteristics that would make them eligible for nomination to the California Register and are considered non-significant resources. Additionally, the three can dumps (OS27-6, OS27-10, and OS27-18) lack qualities and characteristics that would make them eligible for nomination to the California Register. The recording of these resources has exhausted any research potential they might have and the three dumps are considered non-significant resources. No further work is recommended for these resources.

One ceramic scatter (OS27-17), located within the boundaries of CA-IMP-68/118 as it was originally recorded, has been displaced from its original setting through earth-moving. Any integrity or potential significance associated with the site was destroyed when the artifacts were moved out of their original and unknown location. Therefore, OS27-17 is not recommended as eligible for the California Register. The ceramic sherds should be collected and no further work is necessary for OS27-17.

Impacts to the two trail segments (OS-27-4 and OS27-7) should be avoided. Should construction be planned within 100m of the sites, measures should be undertaken so that impacts to the trails will not occur. This can be accomplished by establishing a 20m buffer around the sites and flagging the buffer once project construction begins.

Sites, OS27-12, OS27-14, OS27-15, and OS-16 have not been evaluated for their potential eligibility for the California Register. Based on the surface expression of artifacts and associated features the four sites may possess the characteristics and qualities necessary for inclusion on the California Register. As such, impacts to these resources should be avoided and this can be done in the manner outlined for the trail segments above. Should construction be planned within 100m

of the sites, measures should be undertaken so that impacts to the resources will not occur. This can be accomplished by establishing a 20m buffer around the sites and temporarily fencing the buffer once project construction begins. Construction crews should be made aware that the fenced area is sensitive and must be avoided.

If impacts to sites OS27-12, OS27-14, OS27-15, and OS-16 cannot be avoided the sites will need to be tested and evaluated for their eligibility for the California Register. If the testing and evaluation of the sites determines that are eligible for the California Register, a data recovery program will need to be implemented to mitigate for potential impacts.

CA-IMP-68/118 was not relocated within the previously mapped boundaries within Section 27. As the site was not relocated, impacts to the site are currently impossible to determine and a tests and evaluation of the site as it was originally mapped are unfeasible based on the results of the current survey. Mitigation for any possible impacts to the site can be undertaken by the identification and cataloguing of the artifacts collected by Malcolm Rogers in the 1920s. Cataloguing the artifacts would provide a measure of information that may help our understanding of what might have been present in the project area and increase our knowledge of the prehistory of Lake Cahuilla.

Additionally, archaeological and Native American monitors should be present for initial earth disturbing activities within the recorded boundaries of CA-IMP-68 and at sites OS27-12, OS27-14, OS27-15, and OS-16. Should previously unrecorded resources be identified during ground disturbing activities, the monitor(s) should have the authority to halt and redirect such activities until the significance of the find can be determined by the Principal Investigator in consultation with County staff. See Table 3 for resources located within the project area and recommended mitigation measures.

Table 3. Cultural Resources Located Within Section 27 and Recommended Mitigation

Site	Description	Recommended as California Register Eligible	Recommended Mitigation
CA-IMP-68/118	Large habitation/village site	No	Catalog previously collected artifacts, Monitor
OS27-1	Isolate buff pot sherd	No	None
OS27-2	Isolate buff pot sherds	No	None
OS27-3	Obsidian chunk manuport	No	None
OS27-4	Trail segment, 10 meters long	Possibly	Avoidance
OS27-5	Isolate buff pot sherd	No	None
OS27-6	Historic can dump	No	None
OS27-7	Trail segment, 25 meters long	Possibly	Avoidance
OS27-8	Isolate secondary flake	No	None
OS27-9	Isolate buff pot sherd	No	None
OS27-10	Historic can dump	No	None
OS27-11	Isolate jasper core fragment	No	None
OS27-12	Ceramic scatter	Possibly	Avoidance or Test and Evaluate, Monitor
OS27-13	Isolate buff pot sherd	No	None
OS27-14	Large ceramic scatter	Possibly	Avoidance or Test and Evaluate, Monitor
OS27-15	Ceramic and lithic scatter with cleared circles	Possibly	Avoidance or Test and Evaluate, Monitor
OS27-16	Ceramic and lithic scatter with a rock circle	Possibly	Avoidance or Test and Evaluate, Monitor
OS27-17	Ceramic scatter	No	None
OS27-18	Historic can dump	No	None

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APPENDICES

A. Resumes of Principal Personnel
B. Native American Contact

CONFIDENTIAL APPENDICES (Bound Separately: Not for Public Review)

C. Records Search Results
D. Figure 3
E. Department of Parks and Recreation Site Forms

APPENDIX A

Resumes of Principal Personnel

PATRICK M. McGINNIS, M.A., RPA

Senior Archaeologist
Tierra Environmental Services

Education

M.A. Archaeology and Heritage Management , University of Leicester, England,
B.A., Anthropology with a concentration in Archaeology, with honors, University of California, San Diego,
Certificate in Archaeology, San Diego City College

Professional Affiliations

Register of Professional Archaeologists
Society for California Archaeology
San Diego County Archaeological Society (Past Secretary)
San Diego Historical Society
Wheelwright Museum of the American Indian
Archaeological Conservancy
National Trust for Historic Preservation

Qualifications

Mr. McGinnis has more than ten years experience in prehistoric and historic archaeology in southern California and the Southwest. He serves as supervisor and crew for fieldwork including survey, testing, data recovery, monitoring, site recording, in addition to supervising lab analysis, and collections management. He has training in GPS/GIS mapping and spatial analysis and has surveyed and monitored for endangered biological resources including Quino checkerspot butterfly, least Bell's vireo, and California gnatcatcher. He has received training in compliance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA) of 1966. His duties also include report writing and historical research projects.

Professional Experience

2002-present	Senior Archaeologist, Tierra Environmental Services, Inc.
2002	Archaeologist/Environmental Scientist, Anteon Corporation, California
1997 - 2002	Archaeologist, Mooney & Associates, San Diego, California.
1997	Archaeological field and lab crew, Center for Spanish Colonial Archaeology, San Diego, California.
1996 - 1997	Archaeology Field School, Rancho Peñasquitos site, with San Diego City College.

Relevant Projects

City of San Diego Sewer Group 744
Mr. McGinnis served as Project Archaeologist for the replacement or rehabilitation of over 14,000 feet of sewer line in the Barrio Logan community of San Diego. Mr. McGinnis' duties included directing the cultural resources survey, authorship of a historic preservation plan for historic-age sidewalk stamps, and over seeing the daily monitoring of the six-month long project. The monitoring program resulted in the identification of ten cultural resources including prehistoric and historic resources. Mr. McGinnis was responsible for participating in several community and public agency meetings. Duties also included identification, analysis and curation of all artifacts recovered during construction and authorship of the final technical report.

City of San Diego Coastal Low Flow Drainage Project
Mr. McGinnis served Senior Archaeologist and report author for a survey and monitoring report of proposed drain improvements. The project included a portion of a major prehistoric village site and construction monitoring was implemented to address potentially intact portions of this site under an existing street.

I-215/ Van Buren Avenue Interchange Replacement Project
Mr. McGinnis served as Principal Investigator for a cultural resources survey of over 70-acres associated with replacement of the Van Buren Avenue interchange and portions of Interstate 215 in Riverside County. Mr. McGinnis' duties included consultation with interested Native American groups, field direction of the cultural resources survey, and completion of the NEPA and CEQA documents.

Friendship March Restoration Project
Mr. McGinnis served as project archaeologist for a survey and test of 500-acres of land in the Tijuana Estuary for the restoration of the marsh habitat of the area. The survey required permitting and interaction with both State and Federal agencies. Project duties also included directing the excavation of 49 backhoe trenches to locate potentially buried archaeological deposits as index for the project area in general. The survey resulted in the location of ten prehistoric and historic archaeological sites. Sites included prehistoric shell middens and lithic scatters in addition to historic sites; including features related to the use of the area as a naval base during WWII, and historic structures and features related to the period of rural when the area was dominated by ranching and farming. Mr. McGinnis was responsible for the laboratory analysis of the artifacts recovered from the project and directed the cleaning and curation of the assemblages from the identified sites. Mr. McGinnis and served as report co-author of the NEPA and CEQA compliant documents.

Willow Street Bridge Rehabilitation Project
Mr. McGinnis served as Principal Investigator for the rehabilitation of Willow Street Bridge over the Sweetwater River in Bonita, California. In addition to directing the survey and authoring the reports Mr. McGinnis also conducted Native American consultation with local Native American tribes in association with any concerns they may have had regarding implementation of the project.

El Camino Real Bridge Replacement
Mr. McGinnis served as Project Archaeologist for this project directing multiple surveys of over 100-acres of land associated with the replacement of the El Camino Real Bridge over the San Dieguito River. The project included evaluation of prehistoric archaeological sites, historic research and evaluation of a number of historic buildings.

Morongo Reservation Wastewater Treatment Facility and Section 8 Master Plan
As Project Archaeologist, Mr. McGinnis directed a survey of approximately 700-acres on the Morongo Indian Reservation in association with a master plan and proposed wastewater treatment facility for the Morongo Band of Mission Indians. Duties included directing the field survey, site recording and authorship of the report.

Pine Valley Estates
Mr. McGinnis directed a survey of 38-acres for a proposed subdivision in the Pine Valley area of San Diego County. The survey resulted in recording seven prehistoric cultural resources. The sites were mostly large bedrock milling sites with multiple loci. Mr. McGinnis also served as report author for a County and CEQA compliant technical report.

Manzanita Reservation Hazardous Fuels Reduction Project
Mr. McGinnis served as project archaeologist for a survey of 1,000-acres of fee-land for the Manzanita Band of Mission Indians. The survey covered an area proposed for hazardous fuels reduction via prescribed buring and firebreak construction. The project resulted in the discovery of over 40 previously unrecorded archaeological sites and isolated artifacts. These were dominated by lithic scatters, rock cairns, habitation sites, and included rock rooms. Duties also included site recording and report authorship.

Los Coyotes Reservation-Pines Fire Archaeological Survey and Data Recovery Project
Mr. McGinnis served as Project Archaeologist and directed the survey of over 100 miles of bulldozer cuts. In addition to directing the data recovery effort at two National Register eligible sites, CA-SDI-12,006 and CA-SDI-16,834. Duties also included site recording of eight unrecorded cultural resources, historical and archival research and report authorship.

Rincon Reservation Road Improvements
Mr. McGinnis directed test and evaluation of a historic/prehistoric site in association with proposed road improvements on the Rincon Indian Reservation in northern San Diego County. Duties included survey, mapping , excavation, laboratory analysis of recovered artifacts and report authorship.

Jacumba Water System Rehabilitation Project
Mr. McGinnis directed a survey of over 8,500 linear feet for the project. The survey resulted in the recording of four historic and prehistoric archaeological sites including a turn-of the-century stone house, 1920s hotel, and prehistoric habitation sites. Information from the survey was used to direct the planning effort in order to avoid sensitive cultural resources. Mr. McGinnis also authored the report and supervised monitoring during implementation of the four month project.

Port of San Diego, Harbor Police Facility
Performed archival research and documentation for the historic Port of San Diego, Harbor Police Facility, designed by famed architect William Templeton Johnson including biographical research, title search, architectural assessment and co-authoring the report.

Hartman Residence
Mr. McGinnis conducted a historical assessment of the Hartman Residence in Encinitas, California. The residence is an early-20th century log-house and associated garage. Duties included completion of Department of Parks and Recreation forms for the resource and authorship of the report.

Bureau of Land Management Lawsuit Compliance
Manager for multiple projects for the BLM under this task. Duties included hiring, contract writing, proposal writing and cost estimating. Responsible for multiple employees, data collection, inter-agency communication and coordination, database management and development, and providing the client with weekly and monthly status reports for the project. Subtasks under the contract included monitoring of public land closures for the Ridgecrest and Needles BLM offices, a socio-economic study for a desert conservation area management plan, Saltcedar removal in highly impacted areas, Off-highway vehicle grant writing, construction and soil restoration monitoring and management plans and plant-water studies in the Death Valley Junction area.

Ramona Unified School District
Performed multiple archaeological surveys of school sites for the Ramona Unified School District. Tasks included historic and archival research of the site locations in addition to leading the surveys and co-authoring the reports of the field investigations.

San Diego Unified School District
Conducted field surveys and historic and archival research in association with planned expansion of Lincoln High School in South San Diego. Duties included inventorying and assessment of over 200 homes located within the proposed expansion areas and completion of State Historic Preservation Office forms for the historic resources located within the project area, in addition to contributing to the report.

Sycuan Hazardous Fuels Reduction
Mr. McGinnis served as project archaeologist for a survey of14-acres of fee-land for the Sycuan Band of Mission Indians. The survey covered an area proposed for hazardous fuels reduction via and firebreak construction. The project resulted in the discovery of a previously unrecorded archaeological sites. Duties included site recording and report authorship.

Barona Indian Reservation. Carried out archival research documenting the history of the Barona Band of Kumeyaay Indians. Covering the period just prior to the eviction from their traditional home at El Capitan to the establishment of the Barona and Viejas reservations. Performed laboratory analysis and cataloguing of extensive collection of prehistoric and historic artifacts purchased for the Barona Museum and Cultural Center.

Ramona Municipal Water District, Mount Woodson Pipeline. Directed Phase I and Phase II testing and evaluation of site in Ramona, CA. Assisted in the laboratory analysis of artifacts. Performed site record and literature research for project's prehistoric and historic components, in addition to historic research of the property. Conducted historic research, including oral interviews, literature searches, and tax and title searches to determine past land use. Completed necessary California Department of Parks and Recreation forms for submittal to the State Historic Preservation Office. Co-authored report.

Gregory Mountain Traditional Cultural Place
Completed National Register Nomination forms for Gregory Mountain as a traditional cultural place for the Luiseño Native American community, including archival research and co-authoring the report.

San Diego County Water Authority
Conducted site record and literature searches for multiple projects throughout the county. Directed multiple Phase I surveys and contributed or co-authored multiple reports.

City of San Diego, San Pasqual Valley Leaseholds. Participated in cultural resource surveys of City-owned parcels in the San Pasqual Valley and subsequently participated in the Phase II archaeological testing of prehistoric sites located within the project area. Performed site record, literature, and historic research including tax assessor records, title searches, oral history and biography, for multiple historic cultural resources within the leaseholds in the valley. Completed necessary California Department of Parks and Recreation forms for submittal to the State Historic Preservation Office. Contributed to authorship of the report.

San Diego Wild Animal Park. Participated in the survey, Phase II testing, Phase III data recovery, and lab analysis for multiple sites within the Wild Animal Park leasehold. Contributed to site analyses and final report.

City of San Diego Water and Wastewater Facilities Department. Provided monitoring services for cultural resources during construction trenching operations in several locations for multiple sewer and water pipeline group jobs.

City of Azusa. Performed historic research and inventory of 120 historic properties for evaluation by the City of Azusa. Tasks included**,** photography**,** architectural style identification, and archival literature searches.

San Diego Presidio Archaeology Project. Participated in field excavation and laboratory analysis of Spanish and Mexican period historic artifacts at the San Diego Presidio site, Old Town. Assisted with public education and outreach projects at the excavation.

Santa Barbara Mission. Performed as crew during survey, field excavation, site recording and laboratory analysis of lithic artifacts from the neophyte village at Santa Barbara Mission, Santa Barbara, CA. Participated in recording the historic crypt located beneath the mission. Conducted research using Spanish period records from Mission Santa Barbara archives.

Tubac Presidio Site Field. Performed as crew for excavation and laboratory analysis of prehistoric Hohokam and Spanish Colonial artifacts at the Tubac Presidio site, Tubac, Arizona.

HILLARY MURPHY

Associate Archaeologist
Tierra Environmental Services

Education

Currently working towards Certificate in Archaeology, San Diego City College
B.A., Interior Design with an Art History Minor, California State University, Sacramento
Researching Archaeology graduate programs to earn a Masters degree with the intent of continuing on towards a doctorate program.

Qualifications

Ms. Murphy has a variety of experience in cultural resources management in southern California and Central America. Ms. Murphy has been involved in surveys for a number of infrastructure and development related projects. She has served as crew for fieldwork including survey, testing, data recovery, monitoring, site recording, site and artifact illustration, and lab analysis.

Professional Experience

July 2007- Current	Associate Archaeologist, Tierra Environmental Services, Inc.
June 2007-July 2007	Archaeological field and lab crew, Programme for Belize, Belize
January 2007-June 2007	Archaeology Field School, Rancho Peñasquitos site, CA-SDI-8125 San Diego City College.

Relevant Projects

Campo Homes
Ms. Murphy served as survey crew for six one-acre parcels of land for the prospective new homes of residents in the Campo Indian Reservation. The survey resulted in two sites containing bedrock milling features and lithic scatters. The larger of the two sites containing a massive abundance of both lithic and ceramic scatter, including chalcedony and obsidian. Ms. Murphy authored the site forms and assisted in the preparation of the report.

Santa Ysabel Homes
Served as survey crew for seven parcels of land proposed for the development of single family houses on the Santa Ysabel Indian Reservation. Each parcel surveyed consisted of a one-acre allotment for the housing. One of which resulted in the location of a historic house once used at the Camp Kearny Training Base during World War I, circa 1917-1920. Ms. Murphy assisted in the completion of the report and site forms.

Augustine Land Transfer
Ms. Murphy served as survey crew for the 120-acre land transfer of three parcels on the Augustine Indian Reservation in Coachella, California, which resulted in the location of seven cultural resources including lithic scatters and a potential burial. Historic artifact scatters and deposits was located, as well. Ms. Murphy co-authored the report and site forms.

Truckhaven Geothermal
Ms. Murphy served as survey crew for a survey of 160-acres in the Ocotillo Wells State Vehicle Recreation. The survey resulted in the identification of 64 cultural resources including prehistoric fish traps, World War II era munitions, lithic scatters, historic camp sites, and sherd scatters. Ms. Murphy completed the site forms and assisted in the preparation of the report.

Pine Valley Estates
Ms. Murphy participated in a survey of 38-acres for a proposed subdivision in the Pine Valley area of San Diego County. The survey resulted in recording seven prehistoric cultural resources. The sites were mostly large bedrock milling sites with multiple loci. Ms. Murphy also served as report author for a County and CEQA compliant technical report.

Bergman Subdivision
Ms. Murphy participated in a survey of 10-acres for a proposed subdivision in the Hemet area of Riverside County. The survey resulted in recording two historic cultural resources. The resources included a turn-of -the-century homestead and associated trash deposits. Ms. Murphy also served as report co-author for a County and CEQA compliant technical report.

Jacumba Water System Rehabilitation Project
Ms. Murphy assisted in the survey and monitoring of over 8,500 linear feet for the project. The survey resulted in the recording of seventeen historic and prehistoric archaeological sites including a turn-of the-century stone house, 1920s hotel, and prehistoric habitation sites. Information from the survey was used to direct the planning effort in order to avoid sensitive cultural resources. Ms. Murphy participated in the laboratory analysis of the artifact collection recovered during monitoring for the project. She was responsible for identification and cataloguing of the artifact assemblage.

Niland Waste Water
Ms. Murphy assisted as crew for surveying two linear miles in preparation of new waste water lines and treatment facility to be implemented. She then assisted in the preparation and completion of the report.

Santiago Sedimentation Basin Project
Served as crew for the survey of 21 acres for a housing development upon which two isolated flakes were observed. Ms. Murphy completed the site forms and assisted in the preparation of the report.

Bishop Water System Upgrade
Ms. Murphy authored site forms and participated in the completion of the report for the survey of a new well and water line project that resulted in the location of seven cultural resources.

Ocotillo RV Project
Ms. Murphy assisted in the survey and monitoring of 5-acres proposed for development as an RV storage center. The survey resulted in the recording of two in-situ lithic scatters. Information from the survey was used to direct the planning effort in order to avoid sensitive cultural resources. Ms. Murphy participated in the laboratory analysis of the artifact collection recovered during monitoring for the project. She was responsible for identification and cataloguing of the artifact assemblage.

Programme for Belize, Blue Creek, Belize
Participated in field excavation and laboratory analysis of the University of Texas, Austen's excavation of the third largest Mayan site in Belize, La Milpa, under the supervision of Dr. Fred Valdez Jr. Attempts have been made to understand the chronology of the sites in the northwest region over a period of 15 years.

Rancho Peñasquitos, **CA-SDI-8125**
Participated in the field excavation under the supervision of Dr. Steve Bouscaren to unveil an eighteenth century Spanish zanja in hopes of better understanding the early water works, both agricultural and natural elements, at this historic and prehistoric site.

APPENDIX B

Native American Consultation

TIERRA
ENVIRONMENTAL SERVICES

May 11, 2010

Mr. Dave Singleton
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814
(916) 653-4082

Dear Mr. Singleton,

Tierra Environmental Services (Tierra) has been obtained to conduct an intensive archaeological survey of land proposed for geothermal and or solar energy projects. The project area is located northeast of the city of Calipatria in Imperial County, California (Figure 1). The project area is located on the Iris Wash California USGS 7.5' Quadrangles and comprises the entire one-mile square Section 27, in Township 10 South and Range 14 East of the San Bernadino Base Meridian.

In addition to informing you about this project, a major purpose of this letter is to request a search of the sacred lands files in possession of the NAHC. Any information you may have about cultural resources on the property would greatly benefit our study.

If I can provide any additional information, please contact me immediately at (858) 578-9064. Thank you for your assistance.

Sincerely,

Patrick McGinnis

Patrick McGinnis, RPA
Senior Archaeologist

Enclosures

9915 Businesspark Ave., Suite C, San Diego, CA 92131-1120
Phone: (858) 578-9064 ▲ Fax: (858) 578-3646
E-mail: TierraEnv@aol.com

STATE OF CALIFORNIA
Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

May 24, 2010

Mr. Patrick McGinnis, Senior Archaeologist
TIERRA ENVIRONMENTAL SERVICES
9915 Businesspark Avenue, Suite C
San Diego, CA 92131-1120

Sent by FAX to 858-578-3646
No. of Pages: 4

Re: Request for a Sacred Lands File Search and Native American Contacts List for the **proposed "Geothermal and Solar Energy Projects"** located near the community of Iris; Impoerial County, California

Dear Mr. McGinnis:

The Native American Heritage Commission (NAHC), the State of California 'Trustee Agency' for the protection and preservation of Native American cultural resources (c.f. CA Public Resources Code §21070; also c.f. *Environmental Protection Information Center v. Johnson [198]) 170 Cal App. 3rd 604*), was able to perform a record search of its Sacred Lands File (SLF) for the affected project area (APE) requested. The California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177)) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c)(f) CEQA guidelines). Section 15382 of the 2007 CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance." The NAHC SLF search **did not Indicate** the presence of Native American cultural resources within one-half mile of the proposed project site (APE). However, there are Native American cultural resources in close proximity to the APE.

Also, this letter includes state and federal statutes relating to Native American historic properties of religious and cultural significance to American Indian tribes and interested Native American individuals as 'consulting parties' under both state and federal law.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway., Culturally-affiliated tribes and individuals may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We recommend that you contact persons on the attached list of Native American contacts. Furthermore we suggest that you contact the California Historic Resources Information System (CHRIS) at the Office of Historic Preservation Coordinator's office (at (916) 653-7278, for referral to the nearest Information Center of which there are 10.

Consultation with tribes and Interested Native American consulting parties, on the NAHC list ,should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f]*et seq),* 36 CFR Part 800.3 (f) (2), the President's Council on Environmental Quality (CSQ; 42 U.S.C. 4371 *et seq.*) and NAGPRA (25 U.S.C. 3001-3013), as appropriate. . The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including *cultural landscapes.*

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery.

Although tribal consultation under the California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) is 'advisory' rather than mandated, the NAHC does request 'lead agencies' to work with tribes and interested Native American individuals as 'consulting parties.' However, the 2006 SB 1059 the state enabling legislation to the Federal Energy Policy Act of 2005, does mandate tribal consultation for the 'electric transmission corridors. This is codified in the California Public Resources Code, Chapter 4.3, and §25330 to Division 15, requires consultation with California Native American tribes, and identifies both federally recognized and non-federally recognized on a list maintained by the NAHC. Consultation on specific projects must be the result of an on-going relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. Regarding tribal consultation, a relationship built around regular meetings and informal involvement with local tribes will lead to more qualitative consultation tribal input on specific projects.

The response to this search for Native American cultural resources is conducted in the NAHC Sacred Lands Inventory, established by the California Legislature (CA Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10) although Native Americans on the attached contact list may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of "historic properties of religious and cultural significance' may also be protected the under Section 304 of the NHPA or at the Secretary of the Interior' discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C, 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Attachment: Native American Contacts

PC ORIGINAL PKG

Native American Contacts
May 24, 2010
Imperial County

Ewiiaapaayp Tribal Office
Robert Pinto, Chairperson
4054 Willows Road
Alpine , CA 91901
wmicklin@leaningrock.net
(619) 445-6315 - voice
(619) 445-9126 - fax
Diegueno/Kumeyaay

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas
P.O. Box 775
Pine Valley , CA 91962
(619) 709-4207
Diegueno -

Manzanita Band of Kumeyaay Nation
Leroy J. Elliott, Chairperson
PO Box 1302
Boulevard , CA 91905
(619) 766-4930
(619) 766-4957 Fax
Kumeyaay

Fort Yuma Quechan Indian Nation
Mike Jackson, Sr., President
PO Box 1899
Yuma , AZ 85366
qitpres@quechantribe.com
(760) 572-0213
(760) 572-2102 FAX
Quechan

Campo Kumeyaay Nation
Monique LaChappa, Chairperson
36190 Church Road, Suite 1
Campo , CA 91906
MLaChappa@campo-nsn.
(619) 478-9046
(619) 478-5818 Fax
Kumeyaay

Torres-Martinez Desert Cahuilla Indians
Diana L. Chihuahua, Cultural Resources
P.O. Boxt 1160
Thermal , CA 92274
dianac@torresmartinez.org
760) 397-0300, Ext. 1209
(760) 272-9039 - cell (Lisa)
(760) 397-8146 Fax
Cahuilla

Kumeyaay Cultural Heritage Preservation
Paul Cuero
36190 Church Road, Suite 5
Campo , CA 91906
chairman@campo-nsn.gov
(619) 478-9046
(619) 478-9505
(619) 478-5818 Fax
Diegueno/ Kumeyaay

Ewiiaapaayp Tribal Office
Will Micklin, Executive Director
4054 Willows Road
Alpine , CA 91901
wmicklin@leaningrock.net
(619) 445-6315 - voice
(619) 445-9126 - fax
Diegueno/Kumeyaay

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.3.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Geothermal and Solar Energy projects; located near the community of Iris in Imperial County, California for which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contacts
May 24, 2010
Imperial County

Cocopah Museum
Jill McCormick, Tribal Archaeologist
County 15th & Ave. G
Sommerton , AZ 85350
culturalres@cocopah.com
(928) 530-2291 - cell
(928) 627-2280 - fax
Cocopah

Quenchan Indian Nation
Bridget Nash-Chrabascz, THPO
P.O. Box 1899
Yuma , AZ 85366
b.nash@quechantribe.com
(928) 920-6068 - CELL
(760) 572-2423
Quechan

Ah-Mut-Pipa Foundation
Preston J. Arrow-weed
P.O. Box 160
Bard , CA 92222
(928) 388-9456

ahmut@earthlink.net
Quechan
Kumeyaay

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.3.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Geothermal and Solar Energy projects; located near the community of Iris in Imperial County, California for which a Sacred Lands File search and Native American Contacts list were requested.

CONFIDENTIAL APPENDIX
(Not for Public Review)

A CULTURAL RESOURCES SURVEY OF 640-ACRES PROPOSED FOR ALTERNATIVE ENERGY EXPLORATION, NILAND, IMPERIAL COUNTY, CALIFORNIA

Prepared for:

The County of Imperial
940 Main Street
El Centro, CA 92243

Ormat Nevada Inc.
6225 Neil Road
Reno, NV 89511
(775) 336-0169

Submitted by:

Tierra Environmental Services
9915 Businesspark Ave., Suite C
San Diego, California 92131-1120
(858) 578-9064

Patrick McGinnis, RPA
Hillary Murphy

May 2010

National Archaeological Data Base Information
Type of Study: Cultural Resource Survey
Sites: OS27-1 through OS27-18, CA-IMP-68
USGS Quadrangles: Wister and Iris Wash 7.5'
Area: 640-Acres
Key Words: Positive Survey, Geothermal, Wister, Imperial County, Salton Buffware, Andesite, Rhyolite, Core, Flakes, Sherds, Lithic scatter, Temporary camp, Ceramic scatter

Stantec Consulting Services Inc.
735 East Carnegie Drive, Suite 280
San Bernardino, California 92408

May 20, 2019

Benjamin Orcutt
Ormat Nevada Inc.
6140 Plumas Street
Reno, Nevada 89519

Reference: CEQA LEVEL GEOTECHNICAL STUDY
Wister Solar Project
East of Wilkins Road and Weist Road
Niland, Imperial County, California
Stantec Project No. 185804156

Dear Mr. Orcutt:

Stantec Consulting Services Inc. (Stantec) has prepared this California Environmental Quality Act (CEQA) Level Geotechnical Study to provide support documentation for the "Environmental Checklist Form" in accordance with the CEQA Guidelines for the proposed Wister Solar Project, located northeast of Wilkins Road and Weist Road, near the City of Niland, California.

PURPOSE AND SCOPE OF WORK

- Review available subsurface information for the Site,
- Excavate and sample a total of 13 test pits to a maximum depth of 10 feet at the Site,
- Perform soil mechanics laboratory testing on select soil samples,
- Evaluate geotechnical properties of soils pertinent to the CEQA Guidelines, and
- Summarize findings, conclusions, and recommendations in this letter.

SITE DESCRIPTION

The proposed Wister Solar project comprises approximately 640 gross acres. The permanent disturbance acreage associated with development of the solar facility and associated infrastructure (Project Site) within the Project Area would be less than the gross acreage of the Project Area. The topography of the Project Area is relatively flat and slopes from the northeast to the southwest at approximately 1.3 percent. The site is located approximately 2 to 3 miles north-northeast of Niland, California in the area shown on Figure 1.

PRE FIELD ACTIVITIES

Test pit exploration locations were selected based on review of aerial photography and confirmed in the field at the time of field sampling. In addition, a site-specific Health and Safety Plan (HASP) was developed in accordance with California Occupational Safety and Health Administration (Cal OSHA) requirements to guide field activities.

FIELD EXPLORATION ACTIVITIES

Thirteen shallow test pits (TP1 through TP13) were advanced at selected locations throughout the site to a maximum depth of ten feet below the existing ground surface (bgs) (Figure 2). Relatively undisturbed samples were obtained using a modified California (CAL) sampler, which is a ring-lined split tube sampler with a 3-inch outer diameter and 2½-inch inner diameter. CAL sampling followed ASTM D3550 (Standard Practice for Ring-Lined Barrel Sampling of Soils) procedures. Disturbed bulk samples were also obtained from the excavation at locations where CAL sampling could not be completed. The CAL sampler was advanced with a backhoe bucket.

Samples were classified in the field using the Unified Soil Classification System (USCS), in accordance with ASTM D2488 (Standard Practice for Description and Identification of Soils [Visual-Manual Method]) procedures. The laboratory testing confirmed or modified field classifications as necessary for presentation on the boring logs. Soil samples were removed from the samplers, placed in appropriate containers, and transported in accordance with ASTM D4220 (Standard Practice for Preserving and Transporting Soil Samples).

The test pit logs are located in Attachment A. Soils are classified in accordance with the USCS, which is explained in "Symbols and Terms Used on Borehole and Test Pit Records" in Attachment A. the approximate test pit locations are shown on Figure 2.

LABORATORY SOIL TESTING

The following laboratory tests were performed on samples collected at the Site either in general accordance with the American Society for Testing and Materials (ASTM) or contemporary practices of the soil engineering profession:

Table 1 – Summary of Laboratory Tests

Type of Test	ASTM Designation	Number Performed
Materials Finer Than 75mm	ASTM D-1140	8
Sieve Analysis	ASTM D422 and ASTM C136	5

The results of the laboratory tests are presented in Attachment B.

REGIONAL GEOLOGY

The Site is located in the eastern portion of the Colorado Desert Geomorphic Province in the southern part of California. According to the California Geological Survey (CGS) website, the Colorado Desert Geomorphic Province consists of a low-lying barren desert basin separated by northwest trending valleys of the Peninsular Ranges to the west. The province is a depressed block between active branches of alluvium covered by the San Andreas Fault. It is characterized by the ancient beach lines and silt deposits of extinct Lake Cahuilla. The province extends to the southern border of California and Mexico and Mojave Desert to the east.

Based on information depicted on available geologic maps (CDMG, 1967) and shown on Figure 3 (Geologic Map), the site is located within an area underlain by Quaternary Lake Deposits (Ql).

A description of the mapped soil units is provided below.

Quaternary Lake (Ql) Deposits – Pleistocene lake deposits consisting of claystone, sand, and beach gravel deposited in former extensive lake and Salton trough (CDMG, 1967).

SUBSURFACE CONDITIONS IN TEST PIT EXPLORATIONS

The near surface (approximately 10 feet deep) soils encountered in the test pits we performed are sand with variable amount of silt and clay (SP, SP-SM, SP-SC, SC and SM USCS soil type) followed by clay with variable amounts of sand (CL USCS soil type). Near surface sandy soil with variable amounts of silt and clay were dry to the maximum depth of exploration. Clay with variable amounts of sand below the near surface sand was low in plasticity, dry to moist, and very stiff to hard in consistency.

The subsurface soils were not difficult to penetrate, and the test pit excavations did not cave to the maximum depth of exploration. Groundwater was not encountered during this investigation.

REGIONAL GROUNDWATER

East Salton Sea Groundwater Basin underlies the western portion of the Mohave Desert and is part of the Colorado River Hydrologic Region. The basin is bounded on the north and east by non-water bearing rocks of the Chocolate Mountains, on the west by the San Andreas and Banning Mission Creek Faults, and on the south by the Imperial Valley Groundwater Basin (DWR, 2004).

Static groundwater was not encountered in the test pits performed for this investigation. Groundwater data from an offsite location approximately 8 miles southwest of the site indicates the depth to groundwater is approximately 49 feet below the ground surface (DWR, 2010). The offsite location is at an elevation of approximately 120 feet above mean sea level. Groundwater levels may fluctuate in the future due to rainfall, irrigation, broken pipes, or changes in site drainage.

REGIONAL SEISMICITY

The project site is located within a highly active seismic zone. A Regional Faulting and Seismicity Map is presented in Figure 4 and a local Earthquake Fault Map is presented in Figure 5. The regional fault map also provides information regarding recent earthquakes in the project area. Several of the more recent earthquakes in the project area include the 1975 Brawley (Map No. 43) earthquake, the 1979 Imperial, Brawley, and Rico (Map No. 48) earthquake, and the 1987 Superstition Hills (Map No. 59) earthquake (CGS, 2016).

The estimated distance of the Site to the nearest expected surface expression of major active faults is presented in the table below. The purple colored faults noted in Figure 4 are either inactive or have a very low slip rate. The distance measurement was taken from a location at the southwest corner of the site which is closest to the Elmore Ranch fault (the closest active fault relative to the

site). The location from which measurements were obtained has a latitude of 33.263984°, and a longitude of -115.510046°.

Fault	Distance (miles) (2)	Maximum Moment Magnitude (1)
Elmore Ranch	8.8	6.7
South San Andreas	13.1	8.2
Imperial	23.5	7.0
Superstition Hills	24.5	6.8
San Jacinto	28.1	7.9

1. 2008 National Seismic Hazard Maps – USGS.
2. Measured from approximate center of site.

REGIONAL SEISMIC HAZARDS

Fault Rupture Hazard

The Site is not located within a currently mapped Alquist-Priolo Special Studies Fault Zone (CDMG, 2002b). As noted above, the nearest active major fault is the Elmore Ranch fault, located approximately 8.8 miles northwest of the Site. Based on the fault's distance from the project site, and since the fault does not project towards the project site, it is our opinion that the potential for surface fault rupture to occur on the project site is low.

Strong Ground Shaking

Strong ground shaking can be expected at the Site during moderate to severe earthquakes in the general region. This is common to most areas in Southern California.

Information published by the Unites States Geologic Survey (USGS) indicates the Peak Ground Acceleration (PGA) with a 2 percent probability of being exceeded at the Site in 50 years is 0.5g (USGS, 2008); where g is the acceleration due to gravity; determined in accordance with the US Seismic Design Maps web site. Mitigation of strong ground shaking is typically provided by designing structures in accordance with the latest addition of the California Building Code.

Liquefaction

Liquefaction of saturated sandy soils is generally caused by the sudden decrease in soil shear strength due to vibration. During cyclic shaking, typically caused by an earthquake, the soil mass is distorted, and inter-particle stresses are transferred from the soil particles to the pore water. As pore pressure increases the bearing capacity decreases and the soil may behave temporarily as a viscous fluid (liquefaction) and, consequently, loses its capacity to support the structures founded thereon.

Engineering research of soil liquefaction potential (Seed, et. al., 1982 and 1985) indicates that generally three basic factors must exist concurrently in order for liquefaction to occur, namely:

- A source of ground shaking, such as an earthquake, capable of generating soil mass distortions.
- A relatively loose sandy soil fabric exhibiting a potential for volume reduction.
- A relative shallow groundwater table (within approximately 50 feet below ground surface) or completely saturated soil conditions that will allow positive pore pressure generation.

The Site is not located within a current, mapped California Liquefaction Hazard Zone. In addition, groundwater in the site vicinity is expected to be approximately greater than 49 feet below the ground surface (DWR, 2010). Based on the near surface soil conditions and depth to groundwater, it is our opinion that the potential for liquefaction related ground failure, including liquefaction, is low.

Lateral Spreading

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or "free" face such as an open body of water, channel, or excavation. This movement is generally due to failure along a weak plane, and may often be associated with liquefaction. As cracks develop within the weakened material, blocks of soil displace laterally toward the open face. Cracking and lateral movement may gradually propagate away from the face as blocks continue to break free.

Due to the low potential for liquefaction, the depth of groundwater, and the fact that the Site is not located near free faces or bodies of water, the potential for lateral spreading is considered low.

SUBSIDENCE

The site is not located within a mapped area of known land subsidence (USGS, 2019). Due to the depth of groundwater and the fact that the Site is not located in a mapped subsidence area, the potential for subsidence is considered low. However, strong shaking in the region could cause subsidence in the loose to medium dense sand below the site.

EXPANSIVE SOIL POTENTIAL

Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). Since near-surface soils encountered during the recent geotechnical investigation are mostly sandy soils whose expansion potential is considered low. As such, special design for expansive soils will likely not be necessary for the proposed development.

SLOPES

The Site is relatively flat, with a topographic gradient less than 2%. Permanent slopes steeper that 5:1 (horizontal to vertical) or higher than 5 feet are not anticipated for the project. Due to the existing topography and the proposed grading, landslides are not considered a potential hazard for the project. The stability of slopes, if any, should be verified when design-grading information becomes available.

EROSION

The predominately coarse-grained soils underlying the site are potentially susceptible to erosion or the loss of topsoil due to surface water flows.

Mitigation of soil erosion may include selective grading, establishment of anchoring vegetation, design of runoff control features such as drainage ditches, and construction of erosion control features such as pavements and surface mats. These mitigation options should be addressed in the design level evaluations for the project.

CONCLUSIONS

Based on the currently planned development, it is our opinion that the soils will require additional assessments to determine mitigation measures for strong ground shaking and erosion as discussed above.

Mitigation options for these hazards are provided in the preceding sections. Impacts should be mitigated through the application of standard conditions of development, which require preparation of a design-level geotechnical study as a condition of grading permit issuance.

Based on the findings of this CEQA Level Geotechnical Study, a completed CEQA questionnaire for the Geology and Soils Section has been included in Attachment C. As recommended above, items checked as "Less than Significant with Mitigation" should be addressed in the scope of a future design-level geotechnical investigation.

We trust that the information provided herein meets the project requirements. If there are any questions regarding this project, please contact the undersigned at your convenience.

Respectfully submitted,
Stantec Consulting Services Inc.

LICENSED PROFESSIONAL ENGINEER
JARET FISCHER
C 80383
EXP. 3/31/21
CIVIL
STATE OF CALIFORNIA

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Principal, Senior Geotechnical Engineer
Phone: (949) 923-6000
Evan.Hsiao@stantec.com

FIGURES

Figure 1 - Site Location Map
Figure 2 – Subsurface Exploration Map
Figure 3 – Geologic Map
Figure 4 – Regional Faulting Map
Figure 5 – Earthquake Fault Map

ATTACHMENTS
Attachment A – Test Pit Logs
Attachment B – Laboratory Test Results
Attachment C – CEQA Guidelines Form – Geology and Soils

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FIGURES

REFERENCE: USGS 7.5 X 15 MINUTE QUADRANGLE; IRIS WASH; 1992

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735 EAST CARNEGIE DRIVE, SUITE 280
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FOR:
ORMAT WISTER SOLAR PROJECT
NEC WILKINS ROAD AND WEIST ROAD
IMPERIAL COUNTY, CALIFORNIA

SITE LOCATION MAP

FIGURE: 1

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804156	JEF	JEF	JEF	4/20/19

PC ORIGINAL PKG

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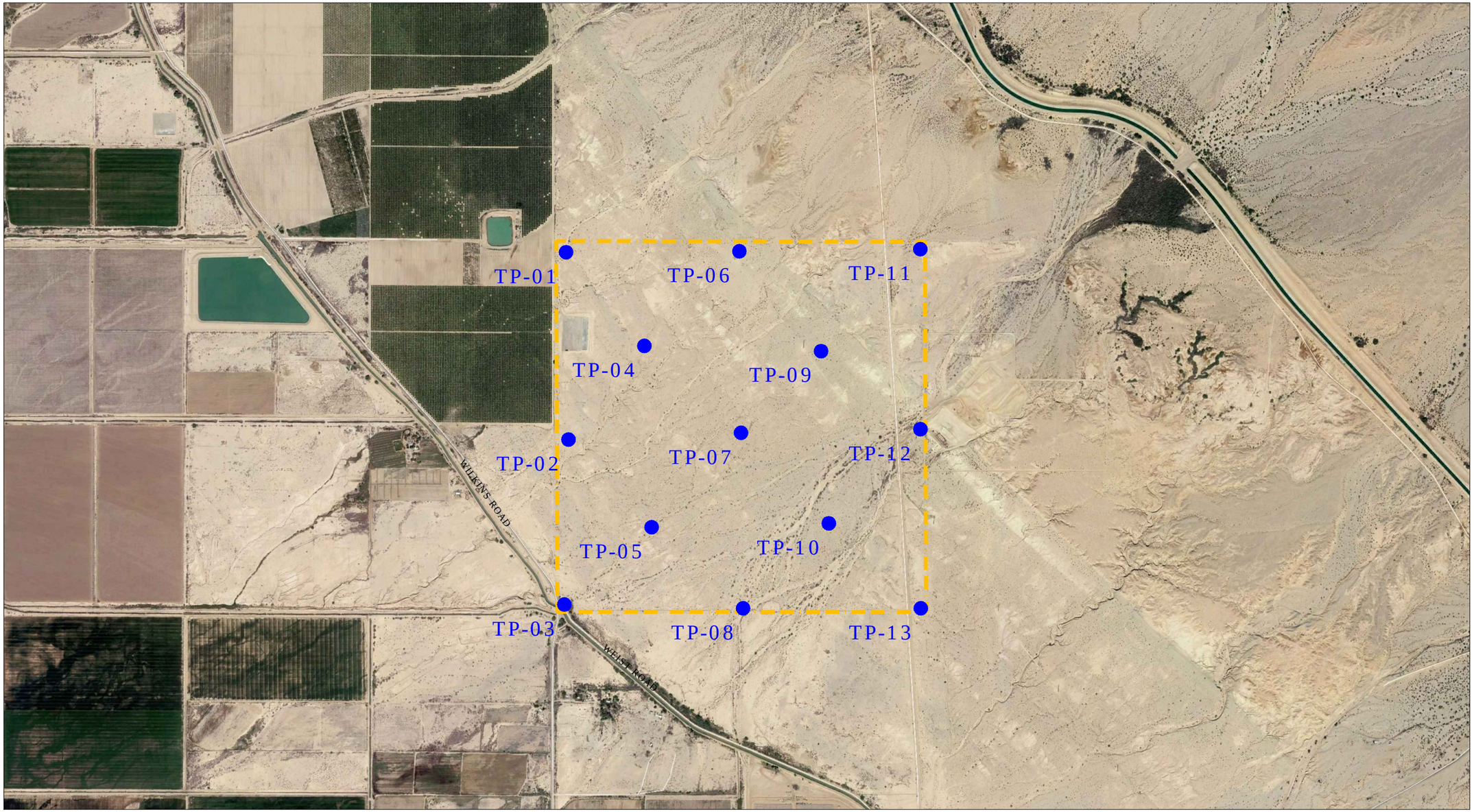

LEGEND

APPROXIMATE LIMITS OF PROPERTY

N

0 1,500 3,000

SCALE (FEET)

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FOR:
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NEC WILKINS ROAD AND WEIST ROAD
IMPERIAL COUNTY, CALIFORNIA

SUBSURFACE EXPLORATION MAP

FIGURE: 2

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185804156	JEF	JEF	JEF	4/20/19

PC ORIGINAL PKG

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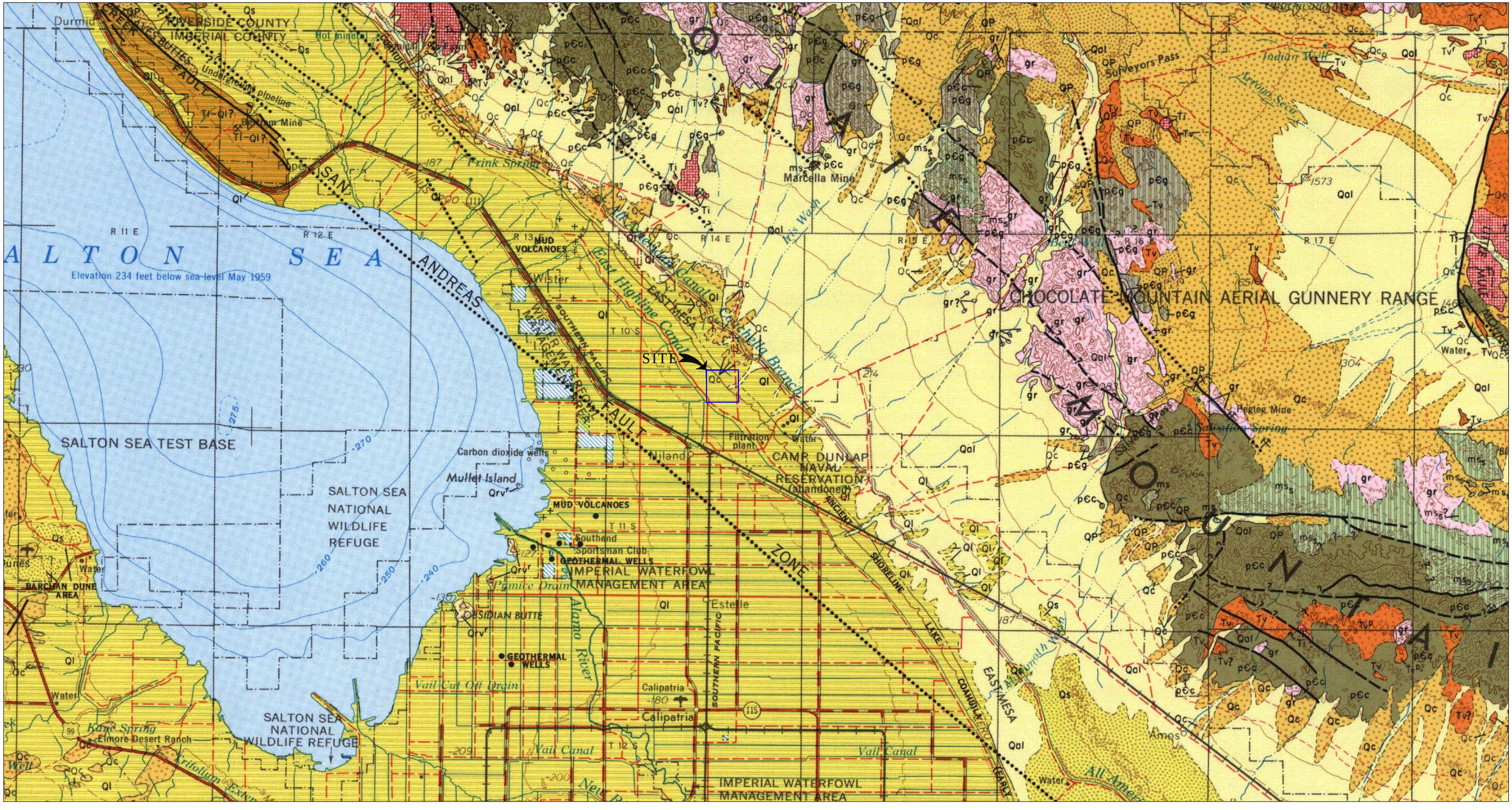

LEGEND

- APPROXIMATE LIMITS OF PROPERTY
- Ql — LAKE DEPOSITS CONSISITNG OF CLAYSTONE, SAND, AND BEACH GRAVEL
- Qal — ALLUVIAL SAND, SILT, CLAY, AND GRAVEL

N

0 3 6

SCALE (MILES)

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FOR:
ORMAT WISTER SOLAR PROJECT
NEC WILKINS ROAD AND WEIST ROAD
IMPERIAL COUNTY, CALIFORNIA

GEOLOGIC MAP

FIGURE: 3

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804156	JEF	JEF	JEF	4/20/19

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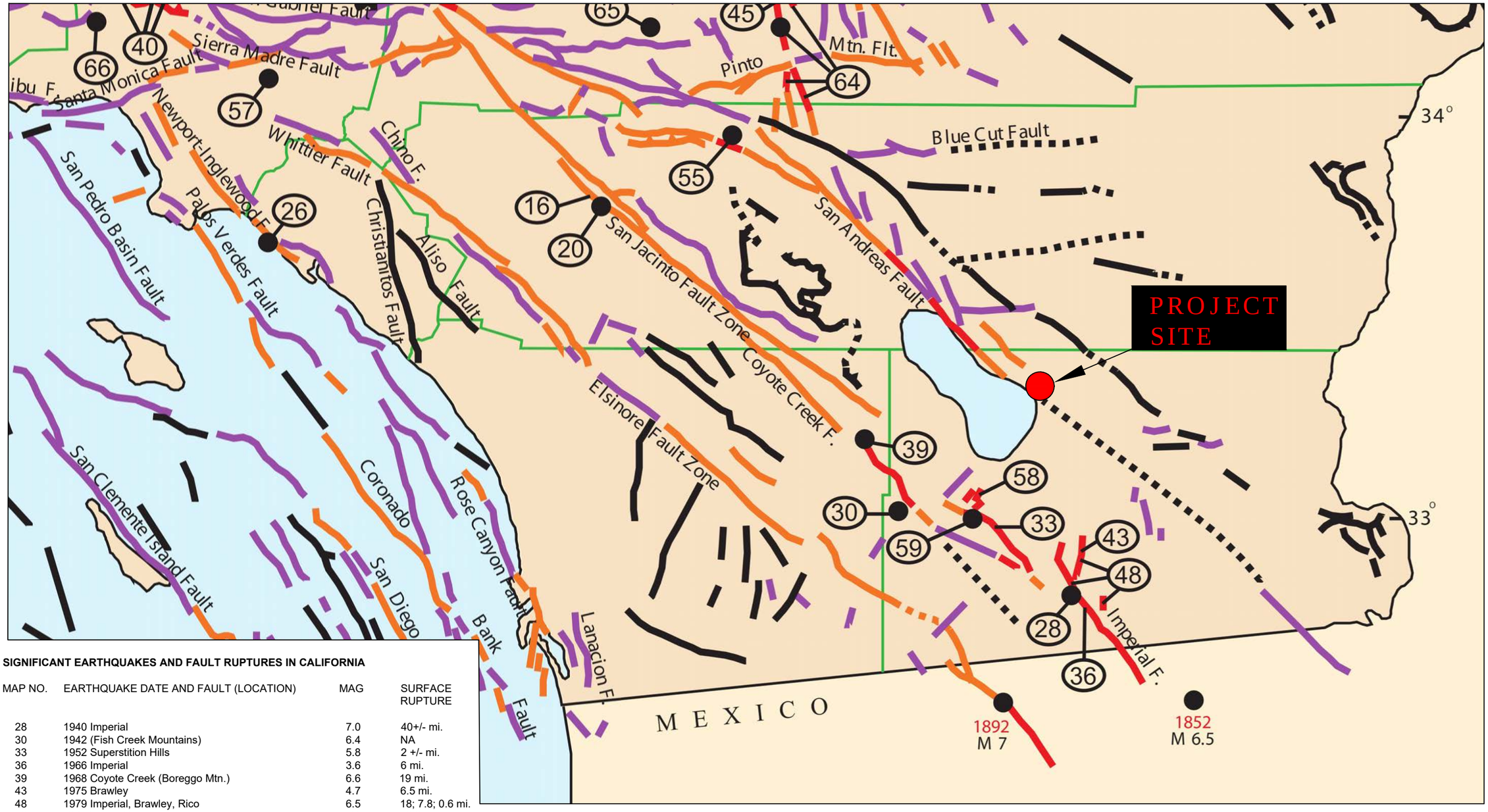

SIGNIFICANT EARTHQUAKES AND FAULT RUPTURES IN CALIFORNIA

MAP NO.	EARTHQUAKE DATE AND FAULT (LOCATION)	MAG	SURFACE RUPTURE
28	1940 Imperial	7.0	40+/- mi.
30	1942 (Fish Creek Mountains)	6.4	NA
33	1952 Superstition Hills	5.8	2 +/- mi.
36	1966 Imperial	3.6	6 mi.
39	1968 Coyote Creek (Boreggo Mtn.)	6.6	19 mi.
43	1975 Brawley	4.7	6.5 mi.
48	1979 Imperial, Brawley, Rico	6.5	18; 7.8; 0.6 mi.
59	1987 Superstition Hills	6.6	16.8 mi.

FAULT WITH KNOWN ACTIVITY IN LAST 200 YEARS

FAULT WITH KNOWN ACTIVITY IN LAST 10,000 YEARS

FAULT WITH KNOWN ACTIVITY IN LAST 1,600,000 YEARS

N

0 15 30

SCALE (MILES)

Stantec
735 EAST CARNEGIE DRIVE, SUITE 280
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ORMAT WISTER SOLAR PROJECT
NEC WILKINS ROAD AND WEIST ROAD
IMPERIAL COUNTY, CALIFORNIA

REGIONAL FAULT MAP

FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804156	JEF	JEF	JEF	4/30/19

PC ORIGINAL PKG

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LEGEND

APPROXIMATE LIMITS OF PROPERTY

N

0 8,000 16,000

SCALE (FEET)

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735 EAST CARNEGIE DRIVE, SUITE 280
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FOR:
ORMAT WISTER SOLAR PROJECT
NEC WILKINS ROAD AND WEIST ROAD
IMPERIAL COUNTY, CALIFORNIA

EARTHQUAKE FAULT MAP

FIGURE: 5

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185804156	JEF	JEF	JEF	4/20/19

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PC ORIGINAL PKG

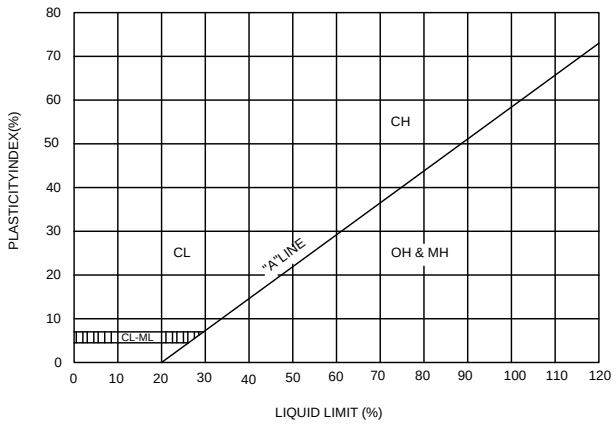
ATTACHMENT A
TEST PIT LOGS

UNIFIED SOIL CLASSIFICATION (ASTM D-2487)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GROUP SYMBOL	SOIL GROUP NAMES & LEGEND
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	*CLEAN GRAVELS <5% FINES	Cu>4 AND 1<Cc<3	GW	WELL-GRADED GRAVEL
			Cu>4 AND 1>Cc>3	GP	POORLY-GRADED GRAVEL
		*GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL
			FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL
	SANDS >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	*CLEAN SANDS <5% FINES	Cu>6 AND 1<Cc<3	SW	WELL-GRADED SAND
			Cu>6 AND 1>Cc>3	SP	POORLY-GRADED SAND
		*SANDS AND FINES >12% FINES	FINES CLASSIFY AS ML OR CL	SM	SILTY SAND
			FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT<50	INORGANIC	PI>7 AND PLOTS>"A" LINE	CL	LEAN CLAY
			PI>4 AND PLOTS<"A" LINE	ML	SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT
	SILTS AND CLAYS LIQUID LIMIT>50	INORGANIC	PI PLOTS >"A" LINE	CH	FAT CLAY
			PI PLOTS <"A" LINE	MH	ELASTIC SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OH	ORGANIC CLAY OR SILT
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK IN COLOR, AND ORGANIC ODOR		PT	PEAT

* Dual symbols required for fines content between 5% and 12%

PLASTICITY CHART



SAMPLER TYPES

- SPT
- Modified California (2.5" I.D.)
- Rock Core
- Shelby Tube
- No Recovery
- Grab Sample

ADDITIONAL TESTS

COR	-	CHEMICAL ANALYSIS (CORROSIVITY)	PI	-	PLASTICITY INDEX
CD	-	CONSOLIDATED DRAINED TRIAXIAL	EI	-	EXPANSION INDEX
CN	-	CONSOLIDATION	TC	-	CYCLIC TRIAXIAL
CU	-	CONSOLIDATED UNDRAINED TRIAXIAL	TV	-	TORVANE SHEAR
DS	-	DIRECT SHEAR	UC	-	UNCONFINED COMPRESSION
PP	-	POCKET PENETROMETER (TSF)	(1.5)	-	(WITH SHEAR STRENGTH IN KSF)
#200	-	Percent Passing #200 SIEVE			
RV	-	R-VALUE	UU	-	UNCONSOLIDATED UNDRAINED TRIAXIAL
SA	-	SIEVE ANALYSIS: % PASSING			
▼	-	WATER LEVEL			

PENETRATION RESISTANCE (RECORDED AS BLOWS / FOOT)

SAND & GRAVEL		SILT & CLAY		
RELATIVE DENSITY	BLOWS/FOOT*	CONSISTENCY	BLOWS/FOOT*	STRENGTH** (KSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.5
MEDIUM DENSE	10 - 30	MEDIUM STIFF	4 - 8	0.5-1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

* NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

* * UNDRAINED SHEAR STRENGTH IN KIPS/SQ. FT. AS DETERMINED BY LABORATORY TESTING OR APPROXIMATED BY THE STANDARD PENETRATION TEST, POCKET PENETROMETER, TORVANE, OR VISUAL OBSERVATION.

LEGEND TO BORING LOGS AND SOIL DESCRIPTIONS

Stantec

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-01** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 16' 39.93"** LONGITUDE: **115° 30' 35.94"**
GROUND ELEV (ft): **-7** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
		SP	**SAND** ; SP; (10YR 4/3) brown; 90% fine to coarse-grained sand; 10% fines; loose; dry; no odor; no staining						
		SC	**CLAYEY SAND** ; SC; (10YR 4/3) brown; 10% fine to coarse-grained gravel; 60% fine to coarse grained sand; 30% low plasticticty fines; dense; dry; no odor; no staining						
5		CL	**CLAY** ; CL; (10YR 4/3) brown; 3% fine grained sand; 97% fines; hard; dry; no odor; no staining (pocket penetrometer (PP) = 4.0 tons per square foot (tsf))		0910 TPI-5	#200			5
10			Hole terminated at 10.5 feet.		0900 TP1-10				10

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-02** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 16' 13.55"** LONGITUDE: **115° 30' 35.68"**
GROUND ELEV (ft): **-30** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
		SM	**QUATERNARY LAKE DEPOSITS (QI)** **SILTY SAND** ; SM; (10YR 4/3) brown; 75% very fine to medium sand; 25% fines; coarse; dry; no odor; no staining						
5		CL	**CLAY** ; CL; (10YR 4/5) brown; 12% fine to coarse gravel; 27% fine to coarse grained sand; 61% low plasticity fines; very stiff; dry; no odor; no staining (PP = 4.0 TSF)		0825 TP2-5	SA			5
10			Hole terminated at 10.5 feet.		0835 TP2-10				10

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-03** PAGE 1 OF 1

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 15' 50.34"** LONGITUDE: **115° 30' 36.17"**
GROUND ELEV (ft): **-47** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
		SM	**QUATERNARY LAKE DEPOSITS (QI)** **SILTY SAND** ; SM; (10YR 4/5) brown; 80% very fine - coarse-grained sand; 20% fines; lose; dry; no odor; no staining						
5					TP3-5	SA			5
10		CL	**CLAY** ; CL; (10YR 4/3) brown; trace gravel; very stiff (4.0); dry; no odor; no staining		TP3-10				10
			Hole terminated at 10.5 feet.						

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-04** PAGE 1 OF 1

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 16' 26.35"** LONGITUDE: **115° 30' 22.55"**
GROUND ELEV (ft): **-9** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
		SP-SM	**POORLY GRADED SAND WITH SILT** ; SP-SM; (10YR 4/3) brown; 90% fine to coarse-grained sand; 10% fines; loose; dry; no odor; no staining						
5		CL	**CLAY** ; CL; (10YR 4/3) brown; 10% fine to coarse gravel; 18% fine to coarse grained sand; 72% low plasticity fines; hard; dry; no odor; no staining (PP = 4.0 TSF)		1220 TP4-5	#200			5
10					1225 TP4-10				10
			Hole terminated at 10.5 feet.						

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-05** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 16' 1.05"** LONGITUDE: **115° 30' 21.17"**
GROUND ELEV (ft): **-31** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
		SC	**CLAYEY SAND** ; SC; (10YR 4/5) brown; 80% very fine to coarse grained sand; 20% fines; loose; dry; no odor; no staining						
5		CL	**CLAY** ; CL; (10YR 4/3) brown; 2% fine grained sand; 98% low plasticity fines; very stiff ; dry; no odor; no staining (PP = 4.0 TSF)		1150 TP5-5	#200			5
10			Hole terminated at 10.5 feet.		1155 TP5-10				10

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-06** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 16' 40.24"** LONGITUDE: **115° 30' 6.28"**
GROUND ELEV (ft): **28** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
		SP	**SAND** ; SP; (10YR 4/3) brown; 90% fine to coarse-grained sand; 10% fines; loose; dry; no odor; no staining						
		SC	**CLAYEY SAND** ; SC; (10YR 4/3) brown; 5% fine gravel; 60% fine to coarse grained sand; 35% low plasticity fines; dry; no odor; no staining						
5		CL	**CLAY** ; CL; (10YR 4/3) brown; 27% fine to coarse grained sand; 73% low plasticity fines; very stiff; moist; no odor; no staining (PP = 4.0 TSF)		1010 TP6-5	#200			5
10					1015 TP6-10				10
			Hole terminated at 10.5 feet.						

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-07** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 16' 14.14"** LONGITUDE: **115° 30' 5.88"**
GROUND ELEV (ft): **-3** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
		SP-SC	**POORLY GRADED SAND WITH CLAY** ; SP-SC; (10YR 4/3) brown; 90% fine to coarse-grained sand; 10% fines; loose; dry; no odor; no staining						
		SC	**CLAYEY SAND** ; SC; (10YR 4/3) brown; 5% fine gravel; 70% fine to coarse grained sand, 25% fines, dry; no odor; no staining						
5		CL	**CLAY** ; CL; (10YR 4/3) brown; 32% fine to coarse grained sand, 68% low plasticity fines, very stiff; dry; no odor; no staining (PP = 4.0 TSF)		1040 TP7-5	#200			5
10					1045 TP7-10				10
			Hole terminated at 10.5 feet.						

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-08** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 15' 49.26"** LONGITUDE: **115° 30' 5.77"**
GROUND ELEV (ft): **-28** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
		SC	**CLAYEY SAND** ; SC; (10YR 4/3) brown; 75% very fine to medium grained sand; 25% fines; dry; no odor; no staining						
5		CL	**CLAY** ; CL; (10YR 4/5) brown; 5% fine to coarse gravel; 22% fine to coarse graiend sand; 73% high plasticity fines; very stiff ; moist; no odor; no staining (PP = 4.0 TSF)		0945 TP8-5	#200			5
10			Hole terminated at 10.5 feet.		0950 TP8-10				10

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-09** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 16' 25.98"** LONGITUDE: **115° 29' 52.31"**
GROUND ELEV (ft): **21** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
		SP	**SAND** ; SP; (10YR 4/3) brown; 90% fine to coarse-grained sand; 10% fines; loose; dry; no odor; no staining						
		SC	**CLAYEY SAND** ; SC; (10YR 4/3) brown; 5% fine gravel; 80% very fine to coarse grained sand; 15% fines; dry; no odor; no staining						
5		CL	**SANDY CLAY** ; CL; (10YR 4/3) brown; 1% fine gravel, 16% fine to coarse grained sand; 83% low plasticity fines; very stiff; dry; no odor; no staining (PP = 4.0 TSF)		1255 TP9-5	SA			5
10			Hole terminated at 11 feet.		1300 TP9-10				10

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-10** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 16' 0.99"** LONGITUDE: **115° 29' 51.78"**
GROUND ELEV (ft): **-3** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
5		SC	**CLAYEY SAND** ; SC; (10YR 4/3) brown; 23% fine to coarse gravel; 64% fine to coarse grained sand; 13% fines; coarse; dry; no odor; no staining		1445 TP10-5	SA			5
		CL	**CLAY** ; CL; (10YR 4/5) brown; 5% fine gravel; 10% fine to coarse grained sand; 85% low plasticity fines; very stiff; dry; no odor; no staining (PP = 4.0 TSF)						
10					1450 TP10-10				10
			Hole terminated at 10.5 feet.						

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-11** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 16' 40.56"** LONGITUDE: **115° 29' 35.57"**
GROUND ELEV (ft): **48** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
5		SC	**CLAYEY SAND** ; SC; (10YR 4/3) brown; 3% fine to coarse gravel; 63% fine to coarse grained sand; 34% fines; coarse; dry; no odor; no staining		1350 TP11-05	SA			5
		CL	**CLAY** ; CL; (10YR 4/3) brown; 10% fine grained sand; 90% low plasticity fines; very stiff; dry; no odor; no staining (PP = 4.0 TSF)						
10					1355 TP11-10				10
			Hole terminated at 10.5 feet.						

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-12** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 16' 14.64"** LONGITUDE: **115° 29' 35.57"**
GROUND ELEV (ft): **25** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
		SC	**CLAYEY SAND** ; SC; (10YR 4/3) brown; 75% very fine to coarse grained sand; 25% fines; dry; no odor; no staining						
5		CL	**CLAY** ; CL; (10YR 4/5) brown; 5% fine grained sand; 95% low plasticity fines; very stiff; dry; no odor; no staining (PP = 4.0 TSF)		1325 TP12-5	#200			5
10					1330 TP12-10				10
			Hole terminated at 10.5 feet.						

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

PROJECT: **Ormat Wister Solar Project**
LOCATION: **Niland, CA**
PROJECT NUMBER: **185804156**
DRILLING: STARTED **4/25/19** COMPLETED: **4/25/19**
INSTALLATION: STARTED **4/25/19** COMPLETED: **4/25/19**
DRILLING COMPANY: **Strong Arm**
DRILLING EQUIPMENT: **Backhoe**
DRILLING METHOD: **Bucket**
SAMPLING EQUIPMENT: **Bucket**

WELL / TEST PIT / BOREHOLE NO: **TP-13** PAGE 1 OF 1

Stantec

NORTHING (ft): EASTING (ft):
LATITUDE: **33° 15' 49.1"** LONGITUDE: **115° 29' 35.42"**
GROUND ELEV (ft): **-5** TOC ELEV (ft):
INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **10.5**
STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in):
LOGGED BY: **ND** CHECKED BY: **JF**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Geotechnical Lab Testing	Blow Count	PID Reading (ppmv)	Depth (feet)
			QUATERNARY LAKE DEPOSITS (QI)						
		SM	**SILTY SAND** ; SM; (10YR 4/5) brown; 80% very fine - coarse-grained sand; 20% fines; lose; dry; no odor; no staining						
5		CL	**CLAY** ; CL; (10YR 4/3) brown; trace gravel; very stiff (4.0); dry; no odor; no staining		1420 TP13-5	#200			5
10			Hole terminated at 10.5 feet.		1425 TP13-10				10

GEO FORM 304 NILAND.GPJ SECOR INTL.GDT 5/17/19

PC ORIGINAL PKG

ATTACHMENT B
LABORATORY TEST RESULTS

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP1-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Test Date	05-03-2019

Initial Sample Wet Mass (g)	404.00	Moisture Content (%)	12.5
Initial Oven Dry Sample Mass (g)	359.20		
Final Oven Dry Sample Mass (g)	10.80		
Materials Finer Than 75µm (No. 200) Sieve (g)	348.40		
Percent Finer Than 75µm (No. 200) Sieve (%)	97.0		

Comments

Reviewed By JF

Stantec

Gradation Analysis

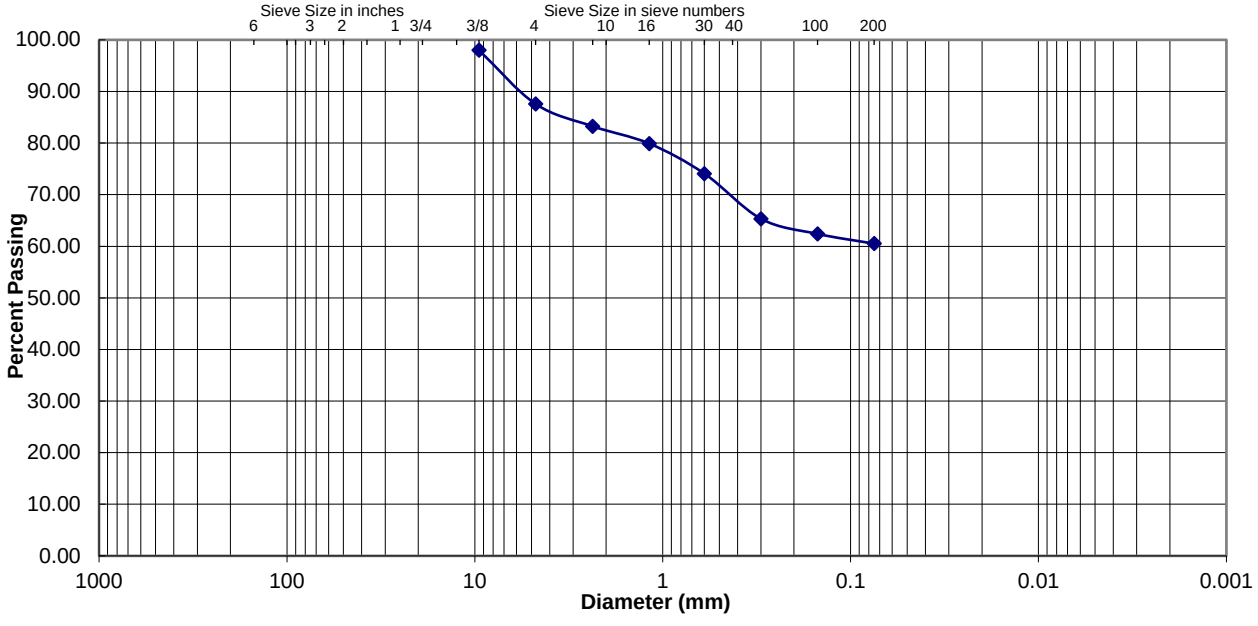
ASTM D 422

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP2-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Preparation Date	05-03-2019
Particle Shape		Test Date	05-04-2019
Particle Hardness			
Sample Dry Mass (g)	406.60	Analysis based on total sample.	
Moisture Content (%)	7.6		

Sieve Size	Grams Retained	% Retained	% Passing
3/8"	8.20	2.0	98.0
No. 4	42.30	10.4	87.6
No. 8	17.60	4.3	83.3
No. 16	13.60	3.3	79.9
No. 30	23.70	5.8	74.1
No. 50	35.60	8.8	65.3
No. 100	11.90	2.9	62.4
No. 200	7.70	1.9	60.5
Pan	246.00	60.5	---

% Gravel	12.4
% Sand	27.1
% Fines	60.5
Fines Classification	CL
D_{10} (mm)	N/A
D_{30} (mm)	N/A
D_{60} (mm)	N/A
Cu	N/A
Cc	N/A

Particle Size Distribution



Comments

Reviewed By JF

Stantec

Gradation Analysis

ASTM D 422

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP3-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Preparation Date	05-03-2019
Particle Shape		Test Date	05-04-2019
Particle Hardness			
Sample Dry Mass (g)	461.10	Analysis based on total sample.	
Moisture Content (%)	1.4		

Sieve Size	Grams Retained	% Retained	% Passing
3/8"	24.00	5.2	94.8
No. 4	44.70	9.7	85.1
No. 8	21.10	4.6	80.5
No. 16	18.80	4.1	76.4
No. 30	26.70	5.8	70.7
No. 50	112.50	24.4	46.3
No. 100	107.20	23.2	23.0
No. 200	31.30	6.8	16.2
Pan	74.80	16.2	---

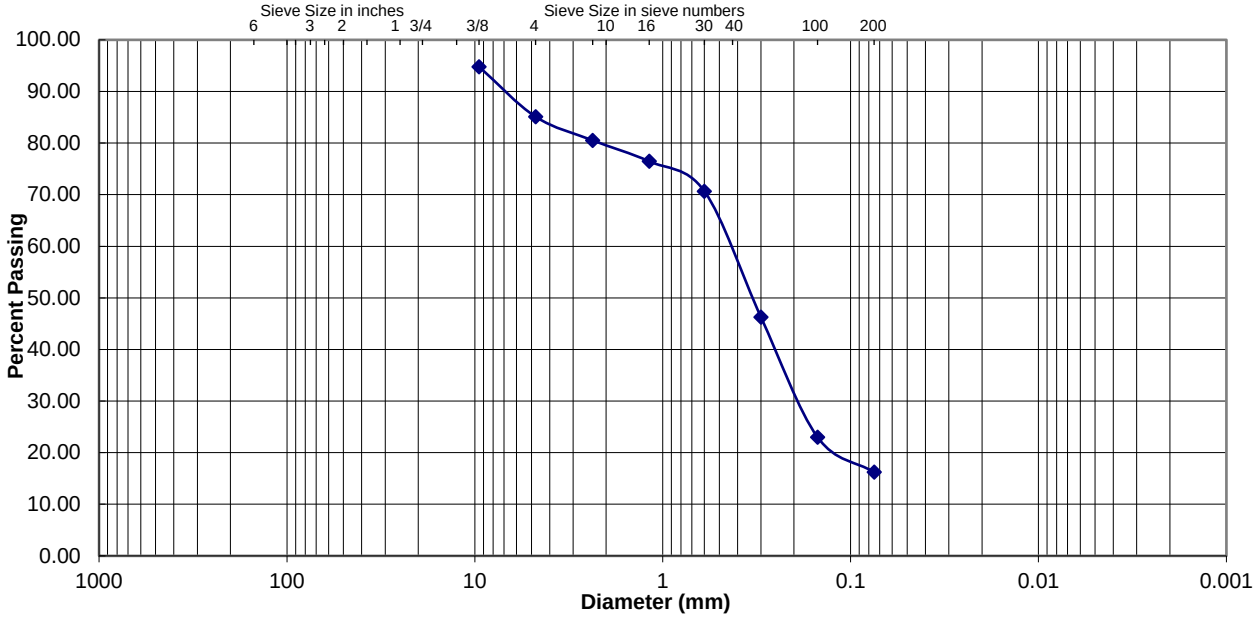
% Gravel	14.9
% Sand	68.9
% Fines	16.2
Fines Classification	CL
D_{10} (mm)	N/A
D_{30} (mm)	N/A
D_{60} (mm)	N/A
Cu	N/A
Cc	N/A

Classification

Clayey Sand (SC)

Classification determined by ASTM D 2487. -200 material classification determined by visual assessment, ASTM D 2488.

Particle Size Distribution



Comments

Reviewed By JF

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP4-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Test Date	05-03-2019

Initial Sample Wet Mass (g)	463.70	Moisture Content (%)	12.8
Initial Oven Dry Sample Mass (g)	411.10		
Final Oven Dry Sample Mass (g)	114.70		
Materials Finer Than 75µm (No. 200) Sieve (g)	296.40		
Percent Finer Than 75µm (No. 200) Sieve (%)	72.1		

Comments

Reviewed By JF

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP5-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Test Date	05-03-2019

Initial Sample Wet Mass (g)	351.60	Moisture Content (%)	9.1
Initial Oven Dry Sample Mass (g)	322.20		
Final Oven Dry Sample Mass (g)	4.90		
Materials Finer Than 75µm (No. 200) Sieve (g)	317.30		
Percent Finer Than 75µm (No. 200) Sieve (%)	98.5		

Comments

Reviewed By JF

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP6-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Test Date	05-03-2019

Initial Sample Wet Mass (g)	366.00	Moisture Content (%)	15.8
Initial Oven Dry Sample Mass (g)	316.00		
Final Oven Dry Sample Mass (g)	86.80		
Materials Finer Than 75µm (No. 200) Sieve (g)	229.20		
Percent Finer Than 75µm (No. 200) Sieve (%)	72.5		

Comments

Reviewed By JF

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP7-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Test Date	05-03-2019

Initial Sample Wet Mass (g)	435.30	Moisture Content (%)	5.5
Initial Oven Dry Sample Mass (g)	412.50		
Final Oven Dry Sample Mass (g)	130.80		
Materials Finer Than 75µm (No. 200) Sieve (g)	281.70		
Percent Finer Than 75µm (No. 200) Sieve (%)	68.3		

Comments

Reviewed By JF

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP8-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Test Date	05-03-2019

Initial Sample Wet Mass (g)	516.70	Moisture Content (%)	17.2
Initial Oven Dry Sample Mass (g)	440.80		
Final Oven Dry Sample Mass (g)	117.60		
Materials Finer Than 75µm (No. 200) Sieve (g)	323.20		
Percent Finer Than 75µm (No. 200) Sieve (%)	73.3		

Comments

Reviewed By JF

Stantec

Gradation Analysis

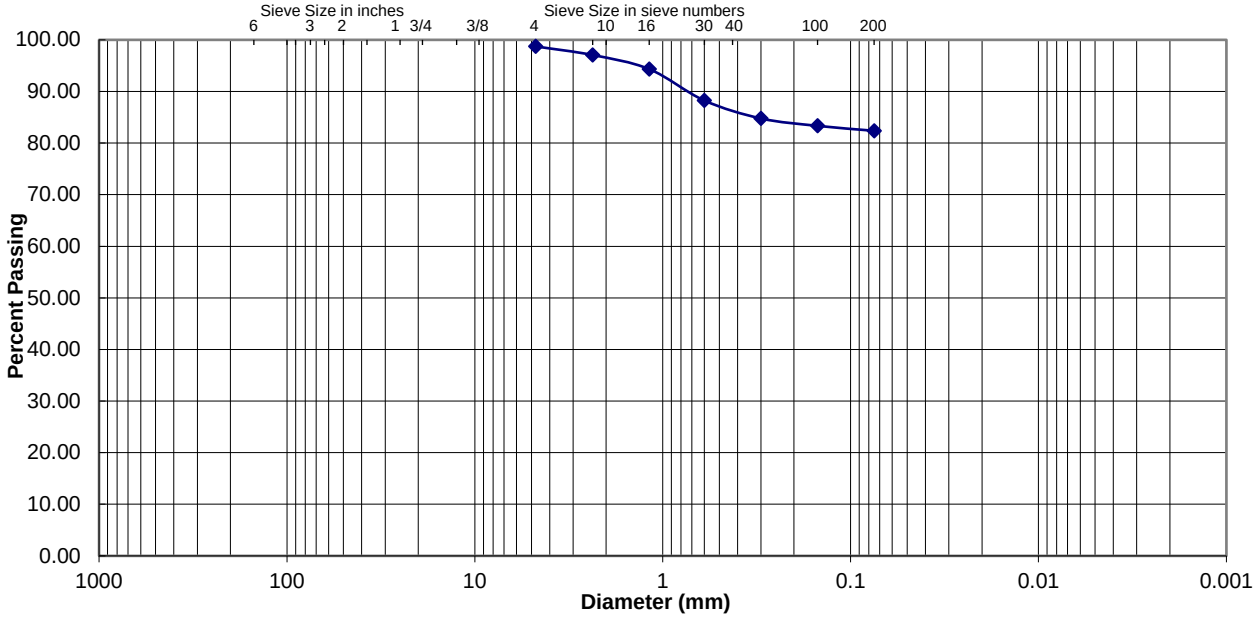
ASTM D 422

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP9-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Preparation Date	05-03-2019
Particle Shape		Test Date	05-04-2019
Particle Hardness			
Sample Dry Mass (g)	377.40	Analysis based on total sample.	
Moisture Content (%)	14.5		

Sieve Size	Grams Retained	% Retained	% Passing
No. 4	4.80	1.3	98.7
No. 8	6.30	1.7	97.1
No. 16	10.30	2.7	94.3
No. 30	23.00	6.1	88.2
No. 50	13.10	3.5	84.8
No. 100	5.40	1.4	83.3
No. 200	3.60	1.0	82.4
Pan	310.90	82.4	---

% Gravel	1.3
% Sand	16.3
% Fines	82.4
Fines Classification	CL
D_{10} (mm)	N/A
D_{30} (mm)	N/A
D_{60} (mm)	N/A
Cu	N/A
Cc	N/A

Particle Size Distribution



Comments

Reviewed By

Stantec

Gradation Analysis

ASTM D 422

Project Name: Ormat Wister Solar Project
Source: Grab

Preparation Method: ASTM D 1140 Method A
Particle Shape:
Particle Hardness:
Sample Dry Mass (g): 462.00
Moisture Content (%): 1.7

Project Number: 185804156
Lab ID: TP10-5'
Date Received: 05-02-2019
Preparation Date: 05-03-2019
Test Date: 05-04-2019

Analysis based on total sample.

Sieve Size	Grams Retained	% Retained	% Passing
3/4"	17.00	3.7	96.3
1/2"	11.90	2.6	93.7
3/8"	38.30	8.3	85.5
No. 4	40.40	8.7	76.7
No. 8	48.90	10.6	66.1
No. 16	44.50	9.6	56.5
No. 30	132.40	28.7	27.8
No. 50	57.70	12.5	15.3
No. 100	11.20	2.4	12.9
No. 200	0.20	0.0	12.9
Pan	59.50	12.9	---

% Gravel: 23.3
% Sand: 63.8
% Fines: 12.9
Fines Classification: CL

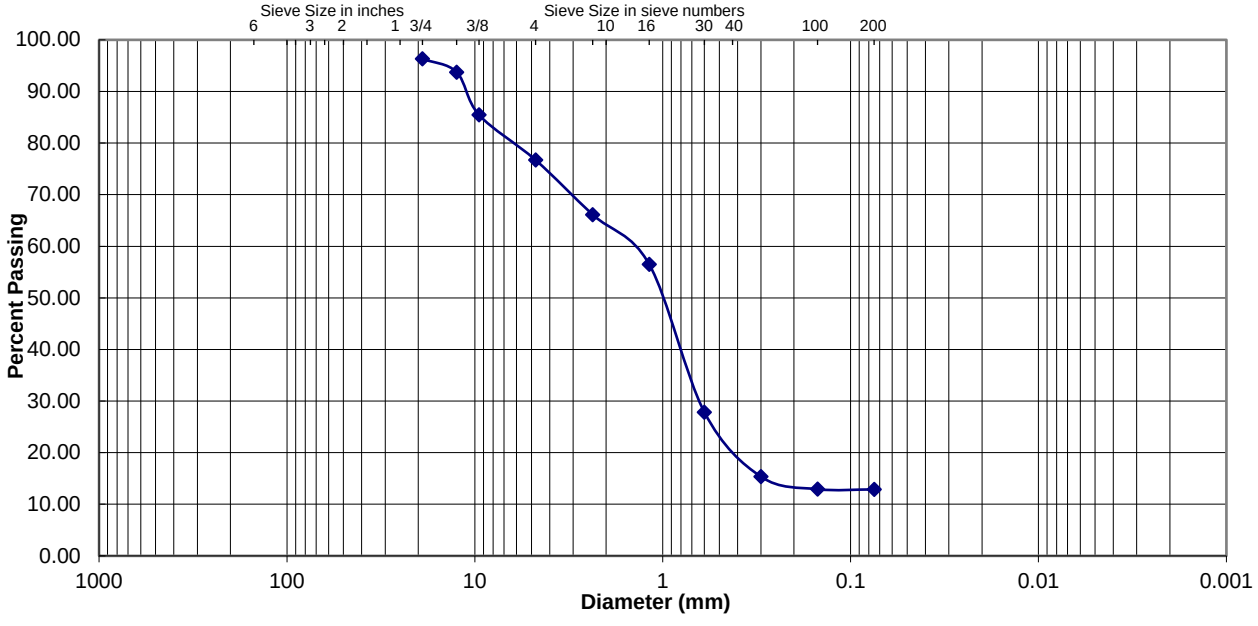
D_{10} (mm): N/A
D_{30} (mm): N/A
D_{60} (mm): N/A

Cu: N/A
Cc: N/A

Classification:
Clayey Sand (SC) with Gravel

Classification determined by ASTM D 2487. -200 material classification determined by visual assessment, ASTM D 2488.

Particle Size Distribution



Comments

Reviewed By: JF

Stantec

Gradation Analysis

ASTM D 422

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP11-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Preparation Date	05-03-2019
Particle Shape		Test Date	05-04-2019
Particle Hardness			
Sample Dry Mass (g)	369.00	Analysis based on total sample.	
Moisture Content (%)	4.6		

Sieve Size	Grams Retained	% Retained	% Passing
No. 4	9.70	2.6	97.4
No. 8	0.00	0.0	97.4
No. 16	0.00	0.0	97.4
No. 30	0.00	0.0	97.4
No. 50	0.40	0.1	97.3
No. 100	29.90	8.1	89.2
No. 200	201.90	54.7	34.4
Pan	127.10	34.4	---

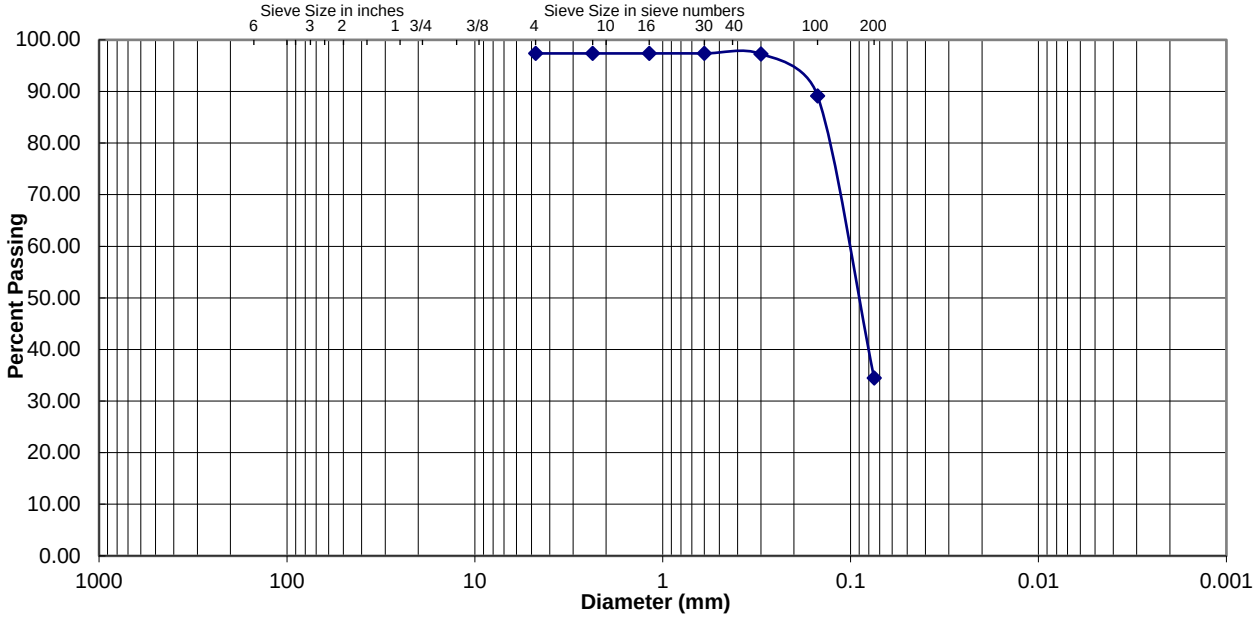
% Gravel	2.6
% Sand	62.9
% Fines	34.4
Fines Classification	CL
D_{10} (mm)	N/A
D_{30} (mm)	N/A
D_{60} (mm)	N/A
Cu	N/A
Cc	N/A

Classification

Clayey Sand (SC)

Classification determined by ASTM D 2487. -200 material classification determined by visual assessment, ASTM D 2488.

Particle Size Distribution



Comments

Reviewed By JF

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP12-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Test Date	05-03-2019

Initial Sample Wet Mass (g)	355.80	Moisture Content (%)	26.8
Initial Oven Dry Sample Mass (g)	280.60		
Final Oven Dry Sample Mass (g)	53.90		
Materials Finer Than 75µm (No. 200) Sieve (g)	226.70		
Percent Finer Than 75µm (No. 200) Sieve (%)	80.8		

Comments

Reviewed By JF

Stantec

Materials Finer Than 75µm (No. 200) Sieve

ASTM D 1140

Project Name	Ormat Wister Solar Project	Project Number	185804156
Source	Grab	Lab ID	TP13-5'
		Date Received	05-02-2019
Preparation Method	ASTM D 1140 Method A	Test Date	05-03-2019

Initial Sample Wet Mass (g)	421.50	Moisture Content (%)	15.8
Initial Oven Dry Sample Mass (g)	364.00		
Final Oven Dry Sample Mass (g)	20.00		
Materials Finer Than 75µm (No. 200) Sieve (g)	344.00		
Percent Finer Than 75µm (No. 200) Sieve (%)	94.5		

Comments

Reviewed By JF

ATTACHMENT C
CEQA GUIDELINES FORM – GEOLOGY AND SOILS

Design with community in mind

PC ORIGINAL PKG

GEOLOGY AND SOILS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to CDMG Special Publication 42)?			X		
ii) Strong Seismic ground shaking?		X			
iii) Seismic-related ground failure, including liquefaction?			X		
iv) Landslides?			X		
b) Result in substantial soil erosion or the loss of topsoil?		X			
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 onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?			X		
d) Be located on expansive soil, as identified in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X		
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for disposal of waste water?			X		

Water Quality Management Plan

Report Description

February 19, 2020

Prepared for:

Orni 33, LLC
6140 Plumas Street
Reno, NV 89519

Prepared by:

Stantec Consulting Services
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361

Table of Contents

1.0 ENVIRONMENTAL SETTING

The project area lies within the Imperial Valley Planning Area of the Colorado River Basin Regional Water Quality Control Board (RWQCB). The site is situated west of Wilkins Road approximately 5.5 miles west of the Salton Sea. According to the Colorado River Basin Plan, the project site is contained within the Brawley Hydrologic Area in the Imperial Hydrologic Unit (HU 723.10). The Imperial Valley is characterized as a closed basin and, therefore, all runoff generated within the watershed discharges into the Salton Sea.

The proposed project is situated on a 640-acre parcel with APN No. 054-250-036, but only 115 acres of the site will be developed into a PV Solar Power Generation Plant. The remaining 525 acres will remain undeveloped.

The project area is characterized by a typical desert climate with dry, warm winters, and hot, dry summers. Most of the rainfall occurs in conjunction with monsoonal conditions between May and September, with an average annual rainfall of less than 3 inches for the project area. The 10-year, 24-hour estimated precipitation amount is 1.87 inches; and the 100-year, 24-hour estimated precipitation is 3.70 inches (NOAA Atlas 14).

2.0 DRAINAGE CONDITIONS

2.1 EXISTING DRAINAGE CONDITIONS

The project site is located in the County of Imperial north of the townsite of Niland, California. The project site and the surrounding terrain is generally flat and slopes down in a southwest direction at approximately 1.5 percent. Currently, off-site storm water runoff runs through the project site. The upstream tributary storm drainage area extends approximately 0.85 miles northeast of the project to the existing Coachella Canal. The storm water runoff eventually drains into the East Highline Canal.

2.2 PROPOSED DRAINAGE CONDITIONS

The project will incorporate on-site storm water retention basins to retain the 100-year, 24-hour storm event of 3 inches over the entire developed area (28.75 acre-ft of runoff volume). There are 5 retention basins to provide 30 acre-feet of storage capacity. The basins are located westerly and southerly of the developed area.

The off-site runoff will be intercepted by the proposed earthen channel at the northerly and easterly boundaries of the developed area. The earthen channel will convey off-site storm water runoff around the development and discharge in the same manner as existing condition downstream of the project site to continue its natural course and eventually into the East Highline Canal. The proposed earthen channels will provide flood protection to the development from uncontrolled off-site storm runoff.

3.0 REGULATORY SETTING

The proposed project is subjected to the following regulations:

3.1 FEDERAL

Federal plans, policies, and regulations that are applicable to the projects are presented below under the following headings.

3.1.1 Clean Water Act

The U.S. Environmental Protection Agency (U.S. EPA) is the lead Federal agency responsible for managing water quality. The Clean Water Act (CWA) of 1972 is the primary Federal law that governs and authorizes the U.S. EPA and the states to implement activities to control water quality. The various elements of the CWA that address water quality and that are applicable to the projects are discussed below. Wetland protection elements administered by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA, including permits for the discharge of dredged and/or fill material into waters of the United States, are discussed in Chapter 4.4, Biological Resources.

Under Federal law, the U.S. EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question; and (2) criteria that protect the designated uses. Section 304(a) requires the U.S. EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. The U.S. EPA is the federal agency with primary authority for implementing regulations adopted under the CWA. The U.S. EPA has delegated the State of California the authority to implement and oversee most of the programs authorized or adopted for CWA compliance through the Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act), described below.

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the U.S. must obtain a water quality certification from the State Water Resources Control Board (SWRCB) in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate.

CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) permit program to control point source discharges from industrial, municipal, and other facilities if their discharges go directly to surface waters. The 1987 amendments to the CWA created a new section of the CWA devoted to regulating storm water or nonpoint source discharges (Section 402[p]). The EPA has granted California primacy in administering and enforcing the provisions of the CWA and the NPDES program through the SWRCB. The SWRCB is responsible for issuing both general and individual permits for

discharges from certain activities. At the local and regional levels, general and individual permits are administered by RWQCBs.

3.1.2 CWA Section 303(d) Impaired Waters List

CWA Section 303(d) requires states to develop lists of water bodies that will not attain water quality standards after implementation of minimum required levels of treatment by point-source dischargers. Section 303(d) requires states to develop a total maximum daily load (TMDL) for each of the listed pollutants and water bodies. A TMDL is the amount of loading that the water body can receive and still be in compliance with applicable water quality objectives and applied beneficial uses. TMDLs can also act as a planning framework for reducing loadings of a specific pollutant from various sources to achieve compliance with water quality objectives. TMDLs prepared by the state must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. The TMDL must also include an analysis that shows links between loading reductions and the attainment of water quality objectives.

The impaired water bodies listed on the 303(d) list for the New River Basin include the Imperial Valley Drains (managed by the Imperial Irrigation District), New River, and the Salton Sea. The Imperial Valley Drains are responsible for draining the area. Further discussion of specific pollutant listings is provided in Section 4.9.1.2.

3.1.3 Antidegradation Policy

The Federal Antidegradation Policy, established in 1968, is designed to protect existing uses, water quality, and national water resources. The Federal policy directs states to adopt a statewide policy that includes the following primary provisions:

- Existing in-stream uses and the water quality necessary to protect those uses shall be maintained and protected.
- Where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development.
- Where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

The Federal Anti-Degradation Policy is applicable to the proposed on-site wastewater system and is implemented by the RWQCB and County's Public Health Department.

3.2 STATE

3.2.1 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, also known as the California Water Code, is California's statutory authority for the protection of water quality. Under this act, the state must adopt water quality

policies, plans, and objectives that protect the state's waters. The act sets forth the obligations of the SWRCB and RWQCBs pertaining to the adoption of Water Quality Control Plans and establishment of water quality objectives. Unlike the federal CWA, which regulates only surface water, the Porter-Cologne Act regulates both surface water and groundwater.

3.2.2 Water Quality Control Plan for the Colorado River Basin

The Water Quality Control Plan for the Colorado River Basin (or Basin Plan) prepared by the Colorado River Basin RWQCB (Region 7) identifies beneficial uses of surface waters within the Colorado River Basin region, establishes quantitative and qualitative water quality objectives for protection of beneficial uses, and establishes policies to guide the implementation of these water quality objectives (RWQCB 2005). According to the Basin Plan (RWQCB 2005), the beneficial uses established for the Imperial Valley Drains, which include the Wistaria Drain, Greeson Wash, New River, and the Salton Sea include: industrial service supply; freshwater replenishment; water contact recreation; non-contact water recreation; warm freshwater habitat; wildlife habitat; preservation of rare, threatened, or endangered species; and aquaculture.

3.2.3 California Toxics Rule

Under the California Toxics Rule (CTR), the U.S. EPA has proposed water quality criteria for priority toxic pollutants for inland surface waters, enclosed bays, and estuaries. These federally promulgated criteria create water quality standards for California waters. The CTR satisfies CWA requirements and protects public health and the environment. The U.S. EPA and the SWRCB have the authority to enforce these standards, which are incorporated into the NPDES permits that regulate the current discharges in the project area.

3.2.4 NPDES General Industrial and Construction Permits

The NPDES General Industrial Permit requirements apply to the discharge of stormwater associated with industrial sites. The permit requires implementation of management measures that will achieve the performance standard of the best available technology economically achievable and best conventional pollutant control technology. Under the statute, operators of new facilities must implement industrial Best Management Practices (BMPs) in the projects' Stormwater Pollution Prevention Plan (SWPPP) and perform monitoring of stormwater discharges and unauthorized non–stormwater discharges. Construction activities are regulated under the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit) which covers stormwater runoff requirements for projects where the total amount of ground disturbance during construction exceeds one acre. Coverage under a General Construction Permit requires the preparation of a SWPPP and submittal of a Notice of Intent (NOI) to comply with the General Construction Permit. The SWPPP includes a description of BMPs to minimize the discharge of pollutants from the sites during construction. Typical BMPs include temporary soil stabilization measures (e.g., mulching and seeding), storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or stormwater, and using filtering mechanisms at drop inlets to prevent contaminants from entering storm drains. Typical post-construction management practices include street sweeping and cleaning stormwater drain inlet structures.

The NOI includes site-specific information and the certification of compliance with the terms of the General Construction Permit.

3.3 LOCAL

3.3.1 County of Imperial General Plan

Due to the economic, biological, and agricultural significance water plays in the Imperial County, the Water Element and the Conservation and Open Space Element of the General Plan contain policies and programs, created to ensure water resources are preserved and protected. Table 4.9-1 identifies General Plan policies and programs for water quality that is relevant to the proposed project and summarizes the proposed project's consistency with the General Plan. While this EIR analyzes the project's consistency with the General Plan pursuant to State CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

3.3.2 County of Imperial Land Use Ordinance, Title 9

The County's Ordinance Code provides specific direction for the protection of water resources. Applicable ordinance requirements are contained in Division 10, Building, Sewer and Grading Regulations, and summarized below.

TABLE-1. PROJECT CONSISTENCY WITH APPLICABLE GENERAL PLAN WATER RESOURCES POLICIES

General Plan Policies	Consistency with General Plan	Analysis
Conservation and Open Space Element		
1) Structural development normally shall be prohibited in the designated floodways. Only structures which comply with specific development standards should be permitted in the floodplain.	Consistent	The projects do not contain a residential component, nor would it place housing or other structures within a 100-year flood hazard area.
Water Element		
1) The County of Imperial shall make every reasonable effort to limit or preclude the contamination or degradation of all groundwater and surface water resources in the County.	Consistent	Mitigation measures contained in Section 4.9.2.3 will require that the project applicant prepare a site-specific drainage plan and water quality management plan to minimize adverse effects to local water resources. Further, Sections 4.6 and 4.8 include additional mitigation requirements for the projects' septic waste treatment and disposal system and the management of hazardous materials and waste during the construction and operation of the projects. These mitigation requirements will be made conditions approval in conjunction with the County's approval of the Conditional Use Permit(s) (CUPs) for the projects.
2) All development proposals brought before the County of Imperial shall be reviewed for potential adverse effects on water quality and quantity and shall be required to implement appropriate mitigation measures for any significant impacts.	Consistent	See response for Water Element Policy 1) above.

3.3.3 Imperial County Engineering Guidelines Manual

Based on guidance contained in the County's Engineering Guidelines Manual, the following water quality requirements would be applicable to the projects.

III A. GENERAL REQUIREMENTS

10. An airtight or screened oil/water separator or equivalent is required prior to permitting on-site lot drainage from entering any street right of way or public storm drain system for all industrial/commercial or multi residential uses. A maximum 6-inch drain lateral can be used to tie into existing adjacent street curb inlets with some exceptions. Approval from the Director of Public Works is required.
11. The County is implementing a storm water quality program as required by the State Water Resources Control Board, which may modify or add to the requirements and guidelines presented elsewhere in this document. This can include ongoing monitoring of water quality of storm drain runoff, implementation of BMPs to reduce storm water quality impacts downstream or along adjacent properties. Attention is directed to the need to reduce any potential of vectors, mosquitoes or standing water.

Surface Water Quality

The surface waters of the Imperial Valley depend primarily on the inflow of irrigation water from the Colorado River via the All-American Canal. Excessive salinity concentrations have long been one of the major water quality problems of the Colorado River, a municipal and industrial water source to millions of people, and a source of irrigation water for approximately 700,000 acres of farmland. The heavy salt load in the Colorado River results from both natural and human activities. Land use and water resources are unequivocally linked. A variety of natural and human factors can affect the quality and use of streams, lakes, and rivers. Surface waters may be impacted from a variety of point and non-point discharges. Examples of point sources may include wastewater treatment plants, industrial discharges, or any other type of discharge from a specific location (commonly a large-diameter pipe) into a stream or water body. In contrast, non-point source pollutant sources are generally more diffuse in nature and connected to a cumulative contribution of multiple smaller sources. There are no comprehensive water quality monitoring stations located within in the project sites, and water quality data are limited.

Common non-point source contaminants within the project area may include, but are not limited to: sediment, nutrients (phosphorous and nitrogen), trace metals (e.g., lead, zinc, copper, nickel, iron, cadmium, and mercury), oil and grease, bacteria (e.g., coliform), viruses, pesticides and herbicides, organic matter, and solid debris/litter. Vehicles account for most of the heavy metals, fuel and fuel additives (e.g., benzene), motor oil, lubricants, coolants, rubber, battery acid, and other substances. Nutrients result from excessive fertilizing of agricultural areas, while pesticides and herbicides are widely used in agricultural fields and roadway shoulders for keeping right-of-way areas clear of vegetation and pests. Additionally, the use of on-site septic systems for wastewater disposal can degrade shallow groundwater by contributing nitrate. All these substances are entrained by runoff during wet weather and discharged into local drain facilities and eventually into the Salton Sea.

Based on the 305(b)/303(d) Integrated Report prepared by the Colorado River Basin RWQCB, the following water features within the Brawley Hydrologic Area includes the Imperial Valley Drains, New River, and the Salton Sea. Specific impairments listed for each of these water bodies (or Category 5) are identified below (SWRCB 2012):

- Imperial Valley Drains: Impaired for chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, endosulfan, polychlorinated biphenyls (PCBs), sedimentation/siltation; toxaphene, and selenium;
- New River: Impaired for chlordane, chlorpyrifos, copper, DDT, diazinon, dieldrin, Hexachlorobenzene/ HCB, mercury, nutrients, organic enrichment/low dissolved oxygen, PCBs, pathogens, sediment, selenium, toxicity, toxaphene, trash, and zinc;
- Salton Sea: Impaired for arsenic, chlorpyrifos, DDT, enterococcus, nutrients, salinity, and selenium.

In relation to the Imperial Valley Drains, the listings for DDT, dieldrin, and, endosulfan only apply to drains that are not responsible for draining the immediate project sites.

4.0 POST-CONSTRUCTION BMPS

The proposed project shall be designed to include Site Design BMPs. Source Control BMPs, and Treatment Control BMPs.

4.1 SITE DESIGN BMPS

The project shall be designed to include Site Design BMPs, which reduce runoff, prevent storm water pollution associated with the project, and conserve natural areas onsite.

	DESIGN CONCEPT	DESCRIPTION
#1	MINIMIZE IMPERVIOUS FOOTPRINT	The project site will include a significant amount of undeveloped land and pervious area. The footprint for the solar arrays will be predominately pervious ground. A minimal amount of Class II base paving for access roads and parking will be constructed.
#2	CONSERVE NATURAL AREAS	Only a small amount of existing site area can be classified as natural landscape and will only be disturbed in necessary areas at the project.
#3	PROTECT SLOPES AND CHANNELS	The project site and surrounding areas is comprised of extremely flat topography. Erosion of slopes due to stabilization problems is not a concern.
#4	MIMIMIZE DCIAS (DIRECTLY CONNECTED IMPERVIOUS AREAS)	No storm drain will be constructed onsite. The site layout does not change the existing drainage pattern.

4.2 SOURCE CONTROL BMPS

“Source control BMPs (both structural and non-structural)” means land use or site planning practices, or structures that aim to prevent urban runoff pollution by reducing the potential for contamination at the source of pollution. Source Control BMPs minimize the contact between pollutants and urban runoff. The following table identifies source control BMPs that would be applicable to the proposed project.

SOURCE CONTROL BMP		DESCRIPTION
#1	DESIGN TRASH STORAGE AREAS TO REDUCE POLLUTION INTRODUCTION	Any outdoor trash storage areas will be designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash.
#2	ACTIVITY RESTRICTIONS	Restrictions include activities that have the potential to create adverse impacts on water quality.
#3	NON-STORM WATER DISCHARGES	Illegal dumping educational materials as well as spill response materials will be provided to employees.
#4	OUTDOOR LOADING AND UNLOADING	Material handling will be conducted in a manner as to prevent any storm water pollution. .
#5	SPILL PREVENTION, CONTROL, AND CLEANUP	The project will require a Spill Prevention, Control, and Countermeasure (SPCC) Plan, and a Hazardous Materials Business Plan in accordance with Federal and State requirements.
#6	EDUCATION	Employees will receive materials for storm water pollution prevention in the form of brochures and other information in a format approved by the County of Imperial.
#7	INTEGRATED PEST MANAGEMENT	If any pesticide is required onsite, the need for pesticide use in the project design will be reduced by: • Keeping pests out of buildings using barriers, screens and caulking • Physical pest elimination techniques, such as squashing, trapping, washing or pruning out pests • Relying on natural enemies to eat pests • Proper use of pesticides as a last line of defense
#8	VEHICLE AND EQUIPMENT FUELING, CLEANING, AND REPAIR	All vehicles will be serviced offsite whenever possible. If servicing is required onsite, it must be conducted in an area isolated from storm drain inlets or drainage ditch inlets. The area must be bermed and precluded from run on. Any spillage must be fully contained and captured and disposed of per County of Imperial Hazardous Waste requirements.
#9	WASTE HANDLING AND DISPOSAL	Materials will be disposed of in accordance with Imperial County Hazardous Material Management guidelines and will be sent to appropriate disposal facilities. Under no circumstances shall any waste or hazardous materials be stored outside without secondary containment.

In addition to Source Controls, specific precautions will be taken when handling, storing or processing any materials during all phases of the proposed project. The utmost care and planning must be taken when using materials outside, and near any storm drain/drainage ditch inlets.

4.3 TREATMENT CONTROL BMPS

The proposed project shall incorporate post-construction Low Impact Development Treatment Control BMPs, including but not limited to infiltration trenches or bioswales, which shall be investigated and integrated into the project layout to the maximum extent practicable. The drainage plan shall provide both short-term and long-term drainage solutions to ensure the proper sequencing of drainage facilities and treatment of runoff generated from project impervious surfaces prior to off-site discharge.

The proposed project shall develop a long-term maintenance plan and implemented to support the functionality of treatment control BMPs. The facility layout shall also include sufficient container storage and on-site containment and pollution-control devices for drainage facilities to avoid the off-site release of water quality pollutants, including, but not limited to oil and grease, fertilizers, treatment chemicals, and sediment.

5.0 CONCLUSIONS

Post project site conditions reflect insignificant increase in impervious surfaces. Therefore, the peak discharge will not be significantly altered by the proposed project. The use of source control, site design and treatment BMPs in practice through the day to day function of the project will result in a decrease potential for storm water pollution.

Maintenance shall be the responsibility of the owner, who will maintain the site design, and source control, and treatment control BMPs throughout the lifetime of the proposed project.

Hydrological Evaluation

Wister Solar Development Project

June 8, 2020

Prepared for:

ORNI 21, LLC
6140 Plumas Street
Reno, NV 89519-6075

Prepared by:

Stantec Consulting Services
290 Conejo Ridge Road
Thousand Oaks, CA 91362

Revision	Description	Author		Quality Check	
A	Internal Draft	S Smith	5/29/20	K Kohan	5/29/20
0	Client Draft	S Smith	6/1/20	K Kohan	6/2/20
1	Final	S Smith	6/8/20	K Kohan	6/8/20

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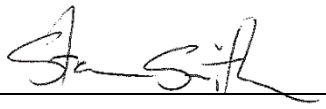
Prepared by 

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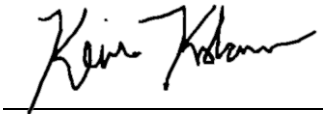
Stanley Smith

Reviewed & Approved by 

(signature)

Kevin Kohan

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LIST OF FIGURES

Abbreviations

°F	Degrees Fahrenheit
AAC	All American Canal
AFY	Acre-feet per year
amsl	Above mean sea level
ANL	Argonne National Laboratory
bmsl	Below mean sea level
DWR	California Department of Water Resources
IIRWMP	Imperial Integrated Regional Water Management Plan
LLNL	Lawrence Livermore National Laboratory
POD	Point of Diversion
Project	Wister Solar Development Project
Proposed Well	Wister Solar Development Project Proposed Water Distribution Well
Stantec	Stantec Consulting Services
TDS	Total dissolved solids

1.0 INTRODUCTION

ORNI 21, LLC (Ormat) is proposing to construct and operate the Wister Solar Development Project (Project) near the unincorporated community of Wister in Imperial County, California (**Figure 1**). The Project is located on a privately owned land parcel within the northwest quarter or Township (T) 10 South (S), Range (R) 14 East (E) Section 27, San Bernardino Meridian. The Project consists of 100 acres of solar installation with a production capacity of 20 megawatt (net), associated infrastructure, and a water distribution well. Commercial operations are anticipated to begin in 2021.

The proposed water distribution well (Proposed Well) would supply water for Project construction, operation and maintenance, and decommissioning. Water requirements are summarized in **Table 1**. Water needs for operation and maintenance include panel washing, backup dust suppression, and fire tank water.

This report describes the hydrology and water related aspects of the Project area and surrounding area. This report includes details of physiography, geologic setting, climate, land use, surface water features, groundwater features, and a hydrologic conceptualization. The extent of this report is generally limited to a two-mile radius around the proposed water distribution well. Where data were limited within a two-mile radius of the Project, information from beyond this radius was included.

Table 1 Estimated Project Water Needs

Phase	Water Usage Rate	Duration	Total Water Requirement (acre-feet)
1: Dirt Work	40,909 gallons per workday	1 month	2.76
2: Construction	16,136 gallons per workday	2-7 months	6.54
3: Reclamation	13,636 gallons per workday	1 month	0.92
Construction Total	**-**	**9 months**	**10.22**
Operation & Maintenance Total	**1.37 acre-feet/year**	**25-30 years**	**34.25-41.10**
Decommission Total	**-**	**1 month**	**5.0**
Project Total		**~26-31 years**	**49.47-56.32**

Assuming 22 construction days per month; Pre-construction water needs assumed to be negligible.

2.0 SITE DESCRIPTION

2.1 PHYSIOGRAPHY

The Project is located in the Basin and Range physiographic province, which includes inland portions of California, the majority of Nevada, and portions or Arizona, New Mexico, Oregon, Utah, Idaho, and Mexico. The Basin and Range is divided into several sub basins, which includes the Salton Trough, which contains the Project. The Salton Trough includes the Imperial Valley in the south and the Coachella Valley in the north. The Project is near the northeastern margin of the Imperial Valley, approximately 5 miles east of the Salton Sea, a saline lake located in Imperial Valley. Imperial Valley is bounded by the Coyote and Jacumba Mountains to the west, the Chocolate and Orocopia Mountains to the northeast, the Sand Hills and Cargo Muchacho Mountains to the southeast, and the United States of America and Mexico border to the south. Furthermore, the elevated margins of Imperial Valley are named West Mesa and East Mesa. The elevation of the Imperial Valley is mostly below sea level and the Project is at approximately 15 feet bmsl. The Chocolate Mountains, which are the closest mountains to the Project, have a maximum elevation of 2,877 feet amsl.

2.2 GEOLOGIC SETTING

The Salton Trough is a tectonically active pull-apart basin. The extensional tectonics results in crustal thinning and sinking. Fault systems near the Project include the San Andreas Fault Zone and Imperial Fault Zone, which are linked by the Brawley Seismic Zone. The trough has filled with sediments due to its topographically low setting and continued sinking. The overall vertical relief of the trough formation is estimated to exceed 14,000 feet, which has been caused by faulting, folding, and warping (Loeltz et al., 1975). The geology and geomorphology of the Imperial Valley was influenced by prehistoric Lake Cahuilla, including lacustrine sediments and paleo-shorelines. The adjacent Chocolate Mountains include outcrops Tertiary and older igneous and metamorphic rocks. The piedmont slope of the Chocolate Mountains, located northeast of the Project, includes poorly sorted alluvial and fluvial deposits with sparse vegetation (Loeltz et al., 1975).

2.3 CLIMATE

The Project area has a hot desert climate. Climate data was available from two nearby weather stations: Niland (0.9 miles west-northwest of the Project; NCEI 2020a) and Brawley (22 miles south of the Project; NCEI 2020b). Both sites report climate normals (1981 to 2010) with Niland reporting precipitation and Brawley reporting precipitation and temperature. Monthly average temperatures are between 54.9 to 91.6°F with minimum temperatures occurring in December and maximum temperatures occurring in August. Average annual precipitation at Niland was 2.88 inches and at Brawley was 2.78 inches. The majority of precipitation occurs from December through March.

Precipitation in the adjacent Chocolate Mountains are estimated at 4–6 inches/year (PRISM, 2020).

Site Description

Table 2 Climate Normals near the Project

Period	Brawley[1)]		Niland[2)]
	Average Temperature (°F)	Precipitation (inches/year)	Precipitation (inches/year)
January	55.8	0.48	0.47
February	59.1	0.53	0.44
March	64.3	0.33	0.45
April	69.9	0.05	0.07
May	77.4	0.02	0.01
June	85.0	0.00[3)]	0.03
July	91.3	0.08	0.23
August	91.6	0.21	0.21
September	86.2	0.16	0.22
October	75.2	0.25	0.18
November	63.2	0.19	0.17
December	54.9	0.48	0.40
Annual	72.9	2.78	2.88

1) Brawley, CA US; GHCND: USC00041048; 32.9544°, -115.5581°; 100 ft bmsl; NCEI, 2020a

2) Niland, CA US; GHCND: USC00046197; 33.2775°, -115.5239°; 60 ft bmsl; NCEI, 2020b

3) non-zero value that rounds to zero

2.4 LAND AND WATER USE

Land use within 2 miles of the Proposed Well is available from the 2003 Land Use GAP dataset. A summary of land use is provided in **Table 3**. The land area in 2002 was 75.6% natural ecosystem, including Sonora Mojave, North American Warn Desert, and Inter-Mountain Basins Shale Badlands. Cultivated croplands, pasture/hay and developed areas accounted for 24% of the area and the remaining 0.5% was open water. Approximately 9.6% of land within this area is within the Chocolate Mountain Aerial Gunnery Range, which is under the jurisdiction of the United States Navy and United States Marine Corps. Comparing land use classification to recent aerial imagery indicates some in land use due to the expansion of agriculture and solar energy operations, with other land use changes possible. Cultivated croplands include areas under irrigation, likely derived from laterals from the East Highline Canal.

Site Description

Table 3 Land Use Within Two Miles of the Proposed Well

Ecosystem	Description	Percent of Area
Sonora Mojave	Creosote Bush White Bursage Desert Scrub	29.9%
	Mixed Salt Desert Scrub	13.3%
North American Warm Desert	Riparian Woodland and Shrubland	11.4%
	Wash	10.8%
	Bedrock Cliff and Outcrop	7.4%
	Pavement	1.0%
	Playa	0.4%
	Volcanic Rockland	0.1%
	Active and Stabilized Dune	0.0%*
Cultivated Cropland	-	13.5%
Pasture/Hay	-	8.5%
Developed	Low Intensity	1.5%
	Medium Intensity	0.0%*
	Open Space	0.5%
Inter-Mountain Basins Shale Badland	-	1.2%
Open Water	Fresh	0.5%

*non-zero value that rounds to zero

3.0 HYDROLOGICAL SYSTEM

The hydrologic system in the vicinity of the Project includes the East Salton Sea groundwater basin (**Figure 2** and further details in Section 3.3), which is influenced by the surface water system, which includes intermittent creeks and canal systems with associated distribution and storage systems (see Section 3.2). Surface water features and wells are shown in **Figure 3**.

3.1 PRECIPITATION AND EVAPOTRANSPIRATION

Precipitation near the Project is recorded at approximately 2.8 to 2.9 inches/year. Modeled precipitation is higher in the Chocolate Mountains at approximately 4 to 6 inches/year. Potential evapotranspiration (PET) is between 80 and 100 inches/year within 2 miles of the Proposed Well (Esri, 2015). In the Chocolate Mountains, PET is higher at 100 to 110 inches/year. High PET rates combined with low precipitation rates limits the potential for groundwater recharge. However, recharge is possible during high precipitation storm events when PET is low.

3.2 SURFACE WATER SYSTEM

Surface water features within 2 miles of the Proposed Well include natural drainages and manmade features including canals, laterals, drains and ponds/reservoirs (**Figure 3**). Natural drainages include Iris Wash and unnamed minor drainages, which convey runoff from the Chocolate Mountains to the Imperial Valley. These drainages ultimately flow towards the Salton Sea, which is the low point of the basin. All-natural drainages are classified as intermittent (USFWS, 2020). All natural drainages are classified as intermittent (USFWS, 2020).

Canals include the Coachella Canal and the East Highline Canal (**Figure 3**). Both canals deliver water from the All American Canal (AAC), located approximately 40 miles south of the Project. The Coachella Canal is located approximately 1.3 miles from the Proposed Well. The Coachella Canal was initially unlined in the Imperial Valley, which lead to water losses into the alluvial sediments. In the late 1970s, the first 49 miles of the Coachella Canal was replaced with a concrete lined channel. This end of this segment is located approximately 3.6 miles east southeast of the Proposed Well. In the mid-2000s, the remaining 36.5 miles of the Coachella Canal (including the section near the Project; see **Figure 3**) was replaced with a concrete lined channel, reducing seepage losses into alluvial sediments.

The East Highline Canal is located approximately 0.5 miles from the Proposed Well. Furthermore, the East Highline Canal crosses the southwest corner of the Project (**Figure 1**). The East Highline Canal is unlined and likely results in seepage to alluvial sediments. The water distribution system in the Imperial Valley, near the Project, include laterals and ponds for distribution and storage, respectively, and drains to convey unused water from distribution system, farmland, and discharging groundwater to the Salton Sea (IIRWMP, 2012). The East Highline Canal is downgradient from the Project though a seepage mound in the shallow aquifer may be present upgradient of the canal, as identified along unlined sections of the AAC and Coachella Canal (Loeltz et al., 1975).

3.3 GROUNDWATER SYSTEM

The Project is located in the East Salton Sea Basin (basin 7-033) (**Figure 2**). The basin occupies the northeastern margin of the Imperial Valley, including the East Mesa, and alluvial surficial deposits of the Chocolate Mountains. The basin covers 279,824 acres. Adjacent basins include Chocolate Valley to the north, Arroyo Seco Valley to the east, Amos Valley to the southeast, and Imperial Valley to the south. No groundwater basin is defined in the footprint of the Salton Sea.

3.3.1 Aquifer Extent and Properties

Aquifers in the East Salton Sea Basin include alluvial aquifers, which are present as valley fill with maximum thicknesses of at least 400 feet (Willets et al., 1954). Water bearing units include unconsolidated Quaternary alluvium and semi-consolidated Tertiary to Quaternary alluvium. The groundwater storage capacity was estimated at 360,000 acre-feet (DWR, 1975). High permeability units likely include coarse sands and gravels, where present. Aquifer extents are bounded by outcropping bedrock in the Chocolate Mountains and possibly low-permeability fault zones such as the San Andreas Fault Zone, the Banning Mission Fault, and other unnamed faults.

Specific to East Mesa, aquifers in this area are generally unconfined, homogenous, and composed of sediments deposited by the Colorado River (IIWMP, 2012).

A geothermal test well was previously drilled at the Project by Ormat (well 12-27) to a depth of 3401 feet bgs. The shallow groundwater system was not specifically characterized during drilling and testing. However, static temperature logs from the well may indicate the presence of an aquifer zone as shallow as 40 to 50 feet bgs. Other aquifer zones are likely present but were not identified due to the limitations of temperature logs. Geothermal properties of the test well were non-economical, and the well was abandoned.

The nearest East Mesa well with a lithological log is 12S/16E-9A, which is located 9 miles to the southwest of the Proposed Well (**Figure 3**). Lithological details are provided in **Table 4**. In the 1000-foot log, 61% of the thickness is dominated by sand, 34% dominated by clay and approximately 1% dominated by sandstone. Sand and clay intervals also include silts and gravels. Coarse sands and gravels, likely having high hydraulic conductivities, are intermittently present throughout the logged sequence. The perforated interval of the well was placed at 150-1,000 feet and the static water level was recorded at 154.5 feet bgs, which is an elevation of 65.5 feet bgs. Other nearby wells with lithological logs were completed in the Imperial Valley and contain higher percentages of clay (Loeltz et al., 1975).

Table 4 Lithological Log of 12S/16E-9A (9 Miles Southwest of the Proposed Well)

Lithology	Thickness (feet)	Depth Interval (feet)
Sand, silty, very fine, and brown clay	10	0-10
Sand, very coarse to fine, and very fine gravel	102	10-112
Clay, light-brown, and very fine silty sand	5	112-117
Sand, fine to medium, and silt	14	117-131
Clay, silty, yellow-brown	5	131-136
Sand, coarse to very coarse	15	136-151
Sand, very coarse to coarse, and very fine and larger gravel	45	151-196
Sand, fine to very coarse, and yellow-brown clay	19	196-215
Clay, yellow-brown, and fine sand	17	215-232
Sand, very fine to very coarse, and thin layers of gravel	48	232-280
Clay, yellow-brown; some light-gray clay	20	280-300
Clay, light-gray, and yellow-brown clay	40	300-340
Sand, medium to very coarse, and gravel	3	340-343
Clay, light-gray	13	343-356
Sand, fine to medium, and light-gray clay	15	356-371
Clay, silty, light-gray	13	371-384
Sand, very fine to medium, and thin layers of gray clay	33	384-417
Sand, fine to very coarse, and very fine to fine gravel	10	417-427
Sand, very fine to medium, and thin layers of gray clay	59	427-486
Clay, light-gray, and fine sand	6	486-492
Sand, silty, very fine to medium	24	492-516
Clay, light-gray	31	516-547
Sand, very fine to medium	15	547-562
Sand, very fine to medium, and light-gray clay	18	562-580
Clay, light-gray and yellow-brown	60	580-640
Sand, fine to very coarse, and light-gray clay	42	640-682
Clay, light-gray, and layers of fine to very coarse sand	30	682-712
Sandstone, very fine to medium, and fine to coarse sand	53	712-765
Clay, light-gray, and very fine to medium sandstone	17	765-782
Clay, light-gray; some yellow brown	38	782-820
Clay, gray and brown, and fine to very coarse sand	46	820-866
Sand, silty, fine to medium	61	866-927
Sand, silty, fine, and light-gray clay, in alternating layers	73	927-1,000

Source: Loeltz et al., 1975

3.3.2 Well Inventory

Only one well was identified within two miles of the Proposed Well. The well is located at 10S/14E-20N, approximately 2.0 miles west of the Proposed Well (**Figure 3**). Few details are available for this well and there are no records of construction details. However, water quality samples were collected in 1961 (see Section 3.3.8).

3.3.3 Recharge

Groundwater recharge in the East Mesa area was historically dominated by seepage from the Coachella Canal, prior to replacement with concrete lined channels in the late 1970s and mid-2000s. Prior to lining, seepage from the 36.5 mile section near the Project has been estimated at 26,000 acre-feet per year. Unlined sections of the AAC continue to recharge the East Mesa groundwater aquifer. However, the unlined section is approximately 45 miles from the Project. In the absence of canal seepage, recharge to the East Mesa aquifer from direct precipitation is estimated to be near zero (Leroy Crandall and Associates, 1983).

Groundwater recharge in the Chocolate Mountains may include mountain front recharge and stream flow runoff (Tompson et al., 2008). The Lawrence Livermore National Laboratory (LLNL) groundwater model (Tompson et al., 2008) estimated that recharge from precipitation within the Imperial Valley and portions of surrounding ranges was 0.019 inches/year, which is less than 1% of precipitation. Furthermore, the LLNL model did not include additional recharge along the mountain fronts. The 2013 groundwater model, which was updated by Argonne National Laboratory (ANL; Greer et al., 2013) estimated recharge at 0.056 inches/year in Imperial Valley and 7.2 inches/year along the mountain-front area of the Chocolate Mountain. This estimate of mountain-front recharge may not be supported by the estimated precipitation rates for the Chocolate Mountains (4-6 inches/year; PRISM, 2020).

In 2003, the DWR classified the East Salton Sea Basin groundwater budget type as ‘C’, which indicates that groundwater data is insufficient to estimate the groundwater budget or groundwater extraction (DWR, 2003).

3.3.4 Discharge and Extraction

Discharge from the East Salton Sea Basin includes springs, discharge into irrigation drains, and extractions from wells. Spring discharge, and water losses from associated vegetation, is likely limited based on the occurrence of few springs (see **Figure 3**). Irrigation drains in the Imperial Valley (including the western margin of the East Salton Sea Basin) primarily return excess irrigation water to the Salton but also function to remove discharging groundwater. Water well extraction rates were last estimated in 1952 at 6 acre-feet/year (DWR, 1975). Due to the lack of development in this basin, current extraction rates may be similar. However, this statement is speculative due to a lack of recent information (DWR, 2003).

3.3.5 Seeps and Springs

No identified springs or seepage are present within two miles of the Proposed Well. The closest identified spring is an unnamed spring located approximately 6.5 miles southeast of the Proposed Well (**Figure 3**) (USGS, 2020).

3.3.6 Underflow

Underflow seepage likely conveys water from the East Salton Sea Basin, downgradient into the Imperial Valley. The quantity of water flow between basins would require details of hydraulic gradients and transmissivities of adjoining aquifers and the impact of transmissive or impeding zones such as faults. Groundwater flow between other surrounding basins in unknown as hydraulic head and hydraulic gradient information is sparse.

3.3.7 Groundwater Levels

Groundwater levels in the vicinity of the Project have been influenced by the presence of the canal systems, including the Coachella Canal, East Highline Canal, and associated laterals and drains. Seepage from the unlined Coachella Canal created a groundwater mound in the shallow alluvial aquifer of East Mesa, with water levels rising over 70 feet in some areas (Loeltz et al., 1975).

Groundwater level decline in the vicinity of the Coachella Canal has been monitored since the late 1970s when the first 49 miles of the earthen canal channel was replaced with a concrete channel. United States Geological Survey (USGS) well 11S/15E-23M, which is approximately 9 miles southeast of the Proposed Well (**Figure 3**), shows an asymptomatic groundwater level decline from 20.68 feet bgs in 1979 to approximately 50 feet bgs at present. The water level elevations as of March 2020 were approximately 70 feet amsl. No groundwater levels have been reported along the Coachella Canal section that was lined in the late 2000s. However, a similar asymptotic decline could be expected.

Groundwater levels in Imperial Valley have been historically measured at two multi-level wells located approximately 6.5 to 7.5 miles southwest of the Proposed Well (11S14E30C and 11S14E19N; **Figure 3**). Water levels at these locations were within 10 feet of the ground surface in 1989. The groundwater elevation at that time was approximately 215 feet bmsl. Groundwater levels in the irrigated areas have been controlled by the drain systems (IIRWMP, 2012).

Current groundwater levels, although sparse, generally agree with historical groundwater elevation distributions. Groundwater elevations are higher in mountainous areas and East Mesa and decline towards Imperial Valley and the Salton Sea. This distribution of groundwater elevations suggests groundwater flow directions roughly coincide with topography. However, the flow of groundwater and distribution of groundwater levels is likely influenced by faults, which act as barriers, and changes in transmissivity.

3.3.8 Groundwater Quality

Groundwater quality in the East Salton Sea Basin is generally reported as poor and not suitable for domestic, municipal, or agricultural purposes (DWR, 2004). Water types include sodium chloride and sodium sulfate. Total dissolved solids (TDS) concentrations are reported as 356 to 51,632 mg/L, whereas the National Secondary Drinking Water Regulations limit TDS to 500 mg/L. Groundwater quality is generally considered better in the vicinity of the unlined canals due to the recharge of lower TDS water.

The closest well to the Proposed Well with available water quality data is located 2 miles to the west (Loeltz et al., 1975). A limited number of water quality constituents were measured in 1961, including pH (8.0),

specific conductivity (19,200 µS/cm), bicarbonate (210 mg/L), chloride (6,050 mg/L), calcium-magnesium hardness (2,440 mg/L), and non-carbonate hardness 2,270 mg/L). The screened interval depth of this well is unknown.

The next closest well to the Proposed Well with available water quality data is an inactive USGS monitoring well (11S/14E-2A) located approximately 2.8 miles to the southeast (USGS, 2020). The well is located in a Basin and Range basin-fill aquifer. The total depth was 825 feet bgs, however, the depth of the screened interval is unknown. Water quality was measured in the late 1960s and early 1970s. The latest water quality sample that includes all major ions (calcium, magnesium, sodium, potassium, bicarbonate, sulfate and chloride) was collected in 1969. This sample had sodium-chloride type water and a TDS concentration of 1,760 mg/L. Furthermore, temperatures were elevated above ambient temperatures at 44.4°C.

3.3.9 Transmissivity and Well Yield

Well yield information for the East Salton Sea Basin is limited. The only identified value is 25 gpm at well 11S/15E-23M, located approximately 9 miles southeast of the Proposed Well (**Figure 3**) (Loeltz et al., 1975). Hydraulic properties in East Mesa were summarized in the mid-1990s (Montgomery Watson, 1995). The range of hydraulic conductivities was 32 to 1,337 feet/day, which included wells several miles southeast of the Project.

3.4 WATER RIGHTS AND POINTS OF DIVERSION

No points of diversion (POD) are identified within two miles of the Proposed Well, (California Water Boards, 2020). However, this two-mile radius includes seven laterals from the East Highline Canal, which may have associated water rights and points of diversion. The closest identified POD is 5.7 miles southwest of the Proposed Well (California Water Boards, 2020). This POD is owned by the Metropolitan Water District of Southern California and is located along the N Lateral, which originates from the East Highline Canal. More distal PODs are associated with laterals and the Alamo River.

4.0 HYDROLOGIC EVALUATION SUMMARY

The Wister Solar Development Project is located within the East Salton Sea Basin, which includes the Chocolate Mountains and the northeastern margin of the Imperial Valley (**Figure 2**). The groundwater storage capacity of the East Salton Sea Basin was estimated at 360,000 acre-feet. Groundwater usage in the East Salton Sea Basin is limited due to generally poor water quality and limited inhabitants. Extraction rates for the East Salton Sea Basin were last estimated in 1952 at 6 acre-feet/year, which is 3% of the estimated recharge rate of 200 acre-feet/year (DWR, 1975). Limited development in the East Salton Sea Basin suggests that current extraction rates are similar. However, a lack of recent data limits the ability update this estimate. Furthermore, surface water from the Colorado River is conveyed into the Imperial Valley through a network of canals, laterals, and reservoirs, which has further reduced the need to develop groundwater resources.

Groundwater in the East Salton Sea Basin is present in alluvial aquifers at depths up to several hundred feet, and with generally high transmissivities (Montgomery Watson, 1995). At the Project, groundwater may also be present in an alluvial aquifer 40-50 feet bgs. Historically, groundwater recharge was significant in the vicinity of the earthen lined Coachella Canal. The replacement of the canal with a concrete lined channel has greatly reduced recharge to the adjacent alluvial aquifers. Near the Project, the Coachella Canal was concrete lined in the late 2000s. The East Highline Canal remains earthen-lined, which likely leads to recharge into the shallow alluvial aquifers near the Project. Recharge from precipitation is generally limited due to low precipitation rates and high evaporation potential. Recharge rates may be higher in the Chocolate Mountains due to higher precipitation rates at higher elevations (4-6 inches/year; PRISM, 2020). Recharge events are likely limited to larger storm events, which may generate runoff and seepage along ephemeral channels. Recharge rates from precipitation were estimated at 0.019 inches/year (Tompson et al., 2008).

The water needs for the Project are estimated at 10.22 acre-feet for construction in the first year, 1.37 acre-feet/year for the subsequent 25 to 30 years of operation, and 5 acre-feet for decommissioning at the end of operations (**Table 1**). Overall, the proposed extraction for the Project are significantly lower than recharge rates in an area where groundwater usage is limited.

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HYDROLOGICAL EVALUATION

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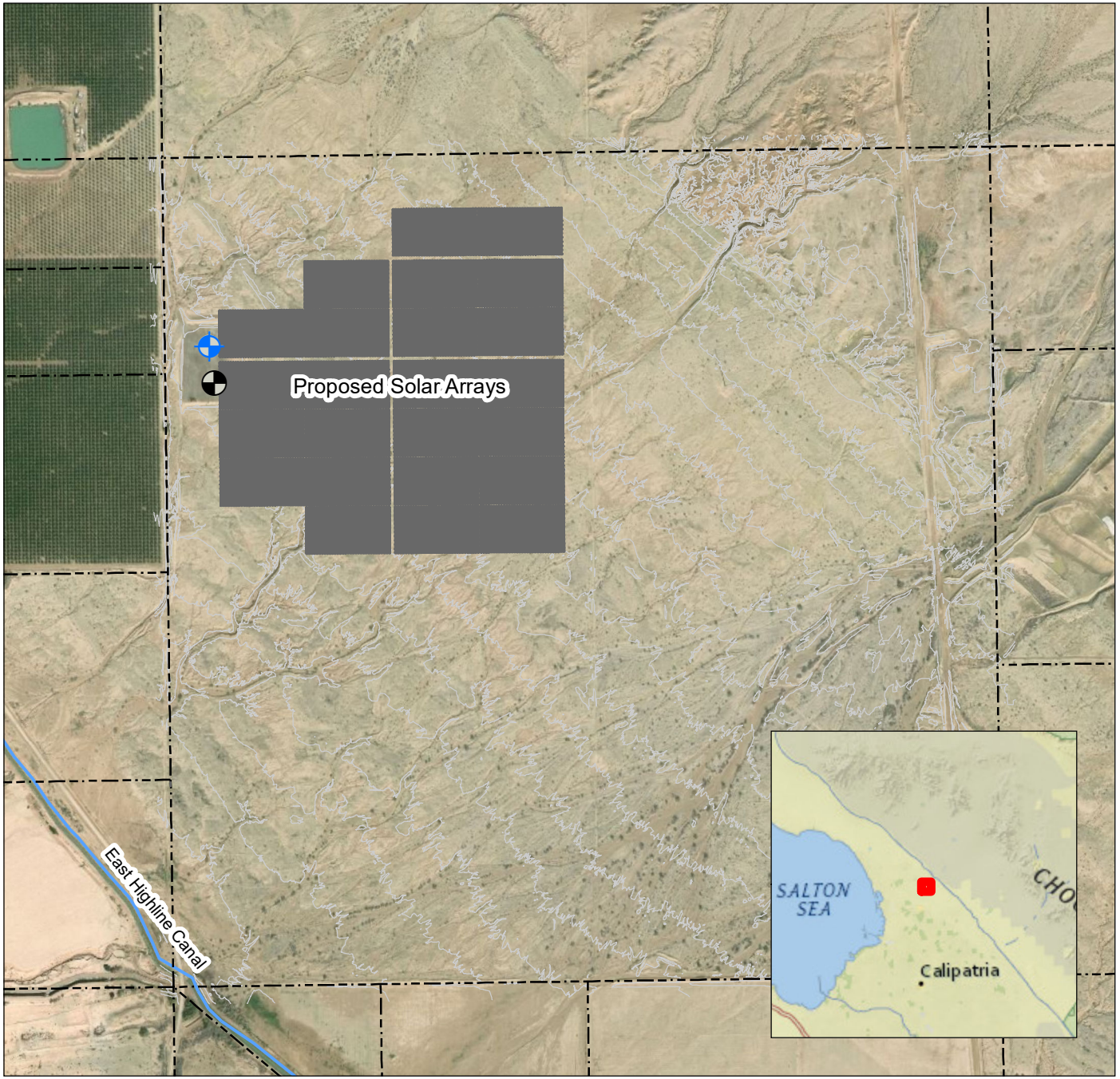
FIGURES



Stantec

Legend

- Proposed Water Distrubution Well
- Geothermal Test Well 12-27
- Property Line
- Contour-major
- Project Location

N

0 150 300 metres

(At original document size of 8.5x11)
1:11,713

Notes

1. Coordinate System: NAD 1983 UTM Zone 11N
2. Data Sources:
3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,

Project Location
T10S, R14E, S27
Imperial County, CA

Prepared by LR on 2020-05-29
TR by SS on 2020-05-29
IR Review by KK on 2020-05-29

Client/Project
ORNI 21, LLC
Wister Solar Development Project
Hydrologic Evaluation

185804209 REVA

Figure No.
1

Title
Project Location and Overview

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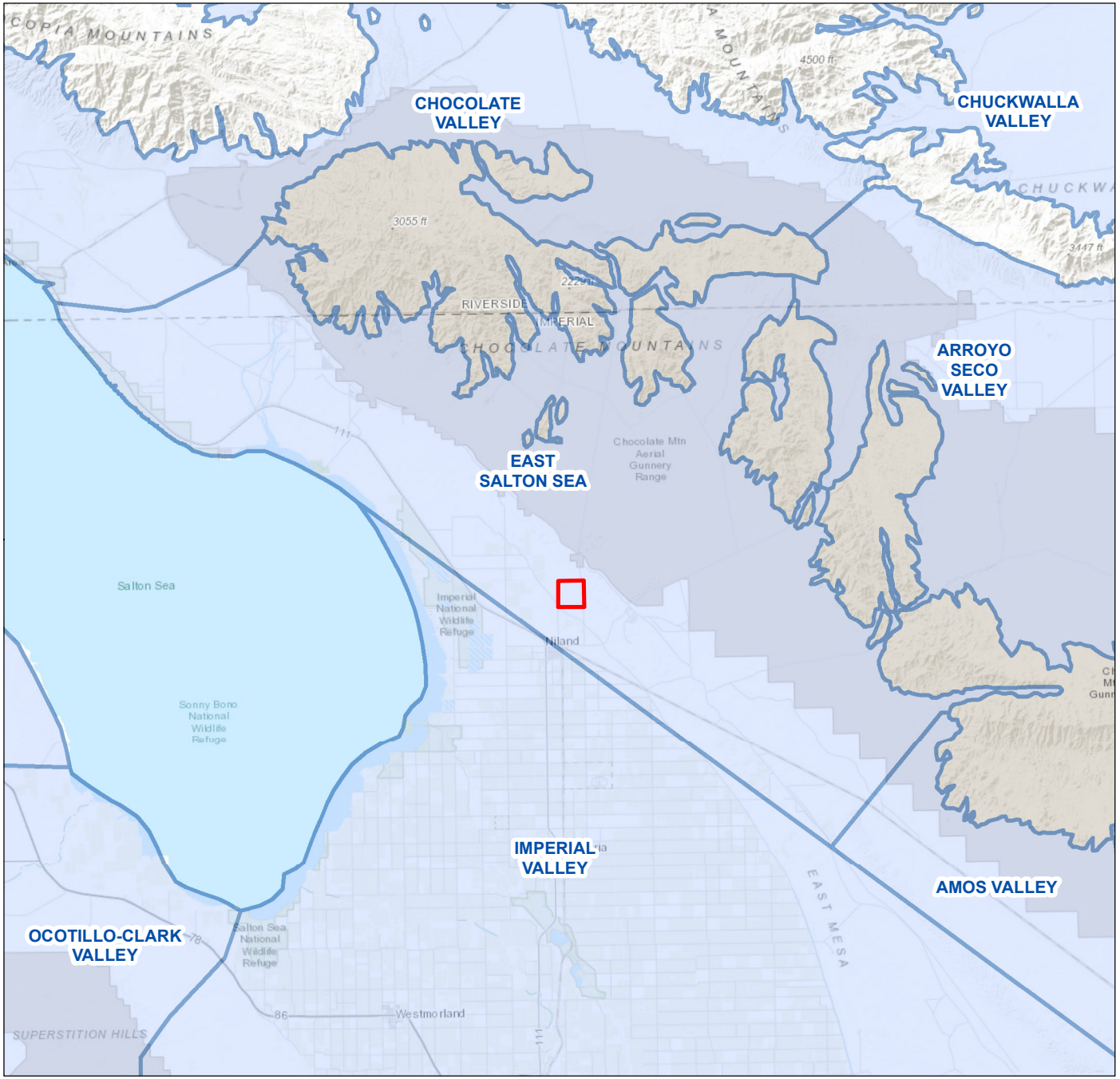
PC ORIGINAL PKG



Stantec

Legend

- Project Location
- Groundwater Basin

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Notes

1. Coordinate System: NAD 1983 UTM Zone 11N
2. Data Sources:
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

Project Location
T10S, R14E, S27
Imperial County, CA

Prepared by LR on 2020-05-29
TR by SS on 2020-05-29
IR Review by KK on 2020-05-29

Client/Project
ORNI 21, LLC
Wister Solar Development Project
Hydrologic Evaluation

185804209 REVA

Figure No.
2

Title
Groundwater Basins

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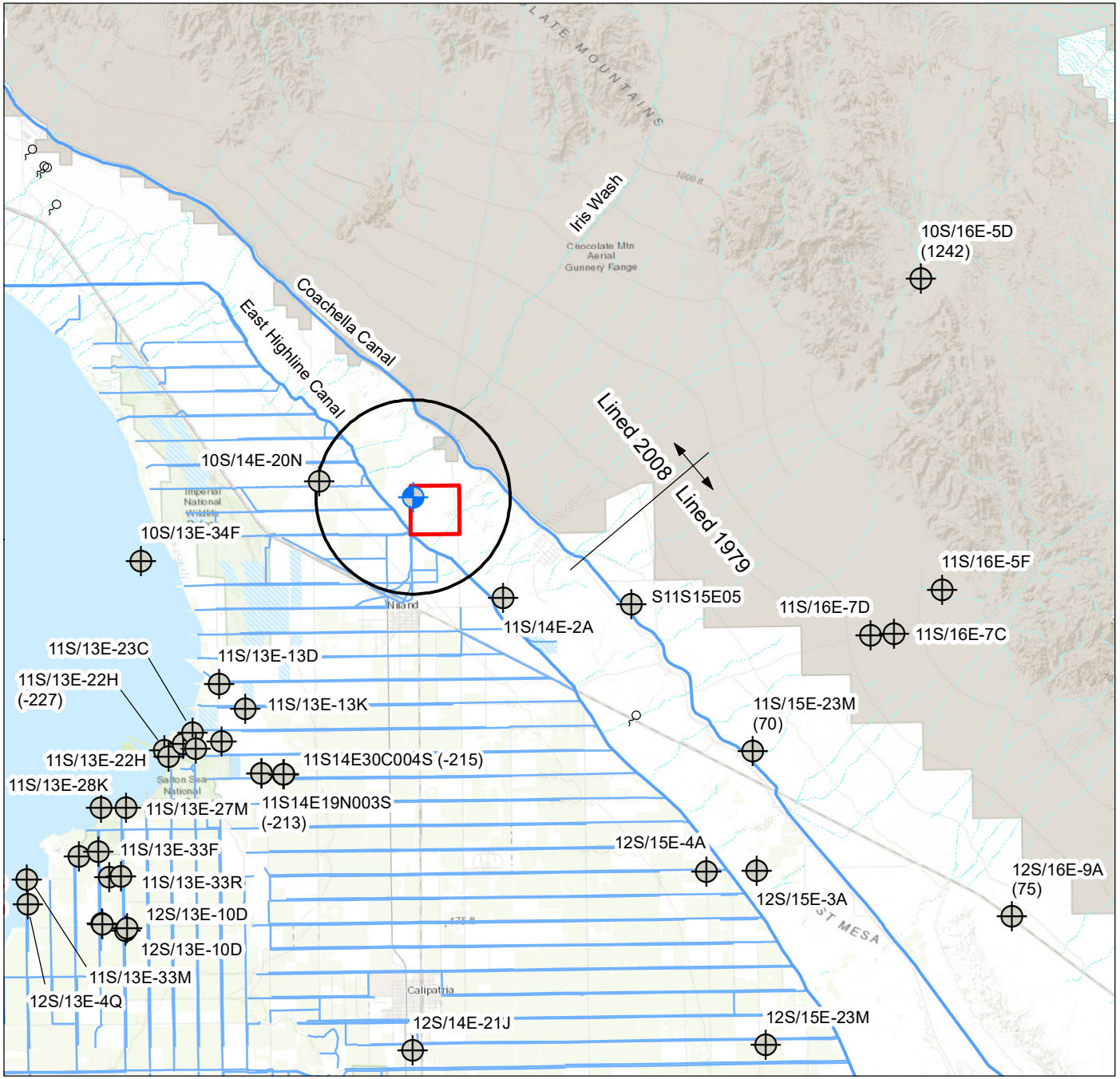
PC ORIGINAL PKG



Stantec

Legend

- Proposed Water Distribution Well
- Existing or Historical Well (Water Level Elevation ft amsl)
- Spring
- Canal
- Lateral
- Intermittent Creek
- Proposed Well 2-Mile Buffer
- Project Location

N

0 2,500 5,000 metres

(At original document size of 8.5x11)
1:200,000

Notes

1. Coordinate System: NAD 1983 UTM Zone 11N
2. Data Sources:
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

Project Location
T10S, R14E, S27
Imperial County, CA

Prepared by LR on 2020-05-29
TR by SS on 2020-05-29
IR Review by KK on 2020-05-29

Client/Project
ORNI 21, LLC
Wister Solar Development Project
Hydrologic Evaluation

185804209 REVA

Figure No.
3

Title
Well and Water Resources Inventory

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PC ORIGINAL PKG

2020

Water Supply Assessment -Wister Solar Development Project

DRAFT – JUNE 2020

PREPARED FOR IMPERIAL COUNTY PLANNING & DEVELOPMENT SERVICES

BY DUBOSE DESIGN GROUP, INC.

1 CONTENTS

2 ACRONYMS

AB	Assembly Bill
AC	Alternating Current
AAC	All-American Canal
AF	Acre-Foot or Acre-Feet
AFY	Acre-Feet per Year
AOP	Annual Operations Plan
APN	Assessor's Parcel Number
CDPH	California Department of Public Health
CDWR	California Department of Water Resources
CEQA	California Environmental Quality Act
CUP	Conditional Use Permit
CU	Consumptive Use
CVWD	Coachella Valley Water District
CWC	California Water Code
DC	Direct Current
EIR	Environmental Impact Report
ET	Evapotranspiration
GenTie	Generation Intertie
ICPDS	Imperial County Planning and Development Services
IID	Imperial Irrigation District
In	Inches
IRWMP	Integrated Regional Water Management Plan
kV	Kilovolt
LAFCO	Local Agency Formation Commission
MGD	Million Gallons per Day
MW	Megawatt
MWD	Metropolitan Water District of Southern California
O&M	Operation and Maintenance
POI	Point of Interconnection
PPA	Power Purchase Agreement
PV	Photo Voltaic
RE	Renewable Energy
RPS	Renewable Portfolio Standard
SB	Senate Bill
US	United States
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
WSA	Water Supply Assessment

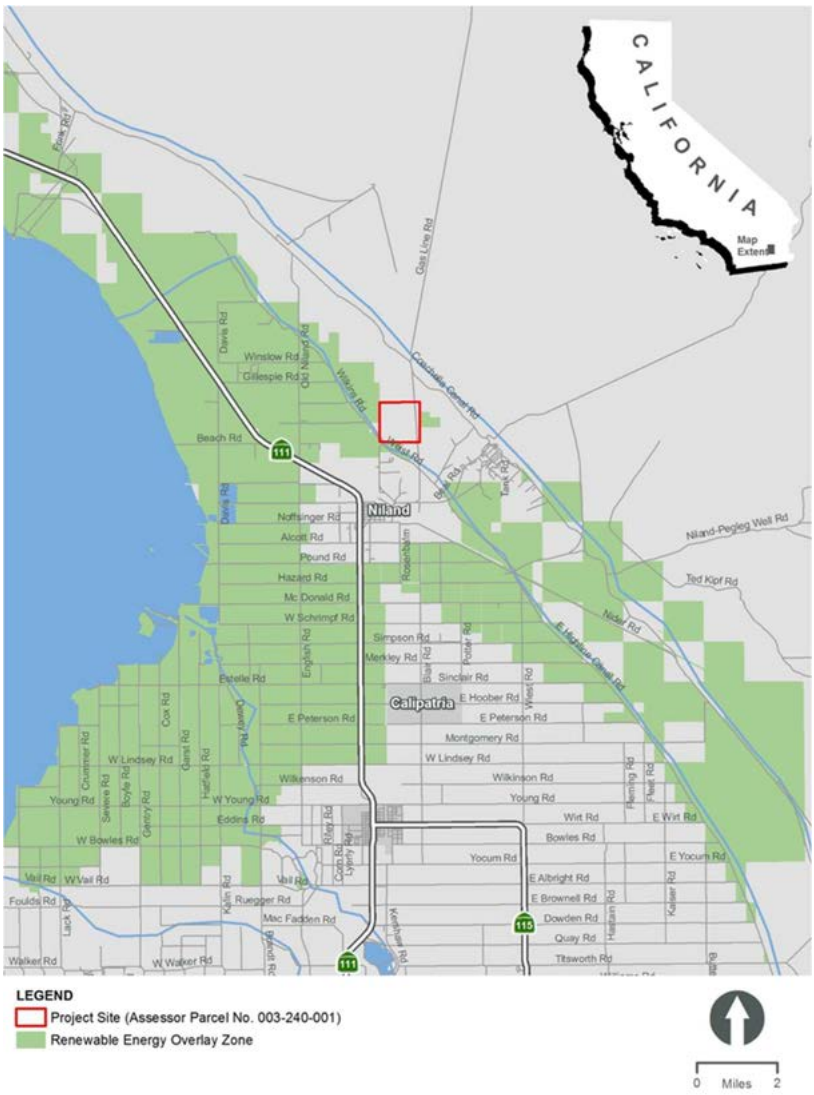
3 PURPOSE OF WATER SUPPLY ASSESSMENT & APPLICABILITY

This Water-Supply Assessment (WSA), SB 610 was prepared for the Imperial County Planning and Development Services (ICPDS) and ORNI 21, LLC (The "Applicant") by water supply experts at DuBose Design Group, Inc (DDG) for the proposed Wister Solar Energy Project ("The Project"). The proposed project consists of three primary components: 1) Solar energy generation equipment and associated facilities including a substation and access roads (herein referred to as "solar energy facility"); 2) gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing Imperial Irrigation District (IID) 92-kilovolt (kV) "K" line; and, 3) fiberoptic cable. California Water Code section 10912. For the purposes of this part, the following terms have the following meanings: (a) "Project" means any of the following: (5) 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 This study is a requirement of California law, specifically Senate Bill 610 (referred to as SB 610).1 SB 610 is an act that amended Section 21151.9 of the Public Resources Code, and Sections 10631, 10656, 10910, 10911, 10912, and 10915 of the California Water Code (CWC). SB 221 is an act that amended Section 11010 of the Business and Professions Code, while amending Section 65867.5 and adding Sections 66455.3 and 66473.7 to the Government Code. SB 610, which was approved by the Governor and filed with the Secretary of State on October 9, 2001, and became effective January 1, 2002, requires a lead agency, to determine that a project (as defined in CWC Section 10912) subject to California Environmental Quality Act (CEQA), to identify any public water system, or groundwater that may supply water for the project and to request the applicants to prepare a specified water supply assessment.

4 DESCRIPTION OF PROPOSED PROJECT AREA

Imperial County is in the southeast of California and borders Arizona and Mexico. The County is in an arid region and a part of the Sonoran Desert. The proposed Project is in the Imperial Valley, approximately 3 miles north of Niland, 5 miles southeast of the Salton Sea, and 4 miles east of what is known as the "Wister Unit." The Wister Unit is part of the Imperial County Wildlife Area, which is a California Department of Fish and Wildlife recreational area. The most prominent water feature in the Valley is the Salton Sea, California's largest inland surface water. Figure 1, below, shows the general location of the Project.

Figure 1 – Project Location



Niland is an unincorporated community. The Imperial Valley is characterized by high summer temperatures (> 110F) and very little precipitation. Its main industry is agriculture, which generates over $2 billion annually. The Valley has nearly 500,000 acres of agricultural land, which are typically farmed year-round and irrigated with Colorado River water. In fact, Colorado River water is the source of drinking water for most residents in the Valley. Good groundwater in the Valley is scarce. Imperial County's Code of Ordinances states, in relevant part, that "…the preservation and protection of the County's ground water resources are extremely critical… The Board of Supervisors has, therefore, determined to regulate the use,

consumption and development of ground water on a County-wide basis. Further, it is the intent of the Board of Supervisors to protect the health, safety, and general welfare of the people of Imperial County by ensuring that the ground water of this County will not be polluted or contaminated. To this end, minimum requirements have been prescribed in this Ordinance for the construction, re-construction, repair, replacement, re-perforation, re-activation, operation, and destruction of a well or wells."[1] Section X of this WSA report describes in more detail the hydrologic setting for the Project.

4.1 CLIMATE FACTORS

Imperial Valley is located in the Northern Sonoran Desert, which has a subtropical desert climate characterized by hot, dry summers and mild winters. Clear and sunny conditions typically prevail, and frost is rare. The region receives 85 to 90 percent of possible sunshine each year, the highest in the United States. Winter temperatures are mild rarely dropping below 32°F, but summer temperatures are very hot, with more than 100 days over 100°F each year. The remainder of the year has a relatively mild climate with temperatures averaging in the mid-70s. The 100-year average climate characteristics are provided in Table below. Rainfall contributes around 50,000 AF of effective agricultural water per inch of rain. Most rainfall occurs from November through March; however, summer storms can be significant in some years. Annual areawide rainfall is shown in Table below. The thirty-year, 1988-2017, average annual air temperature was 74.1°F, and average annual rainfall was 2.59 inches. This record shows that while average annual rainfall has fluctuated, the 10-year average temperatures have slightly increased over the 30-year averages.[2]

***Table 1:** Climate Characteristics, Imperial, CA 100-Year Record, 1918-2017*

Climate Characteristic	Annual Value
Average Precipitation (100-year record, 1918-2017)	2.96 inches (In)
Minimum Temperature, Jan 1937	16 °F
Maximum Temperature, July 1995 & June 2017	121 °F
Average Minimum Temperature, 1918-2017	47.9 °F
Average Maximum Temperature, 1918-2017	98.3 °F
Average Temperature, 1918-2017	72.9 °F

Source: IID Imperial Weather Station Record

[1] HTTP://IMPERIALCO-CA.ELAWS.US/CODE/COOR_TITLE9_DIV21_CH1, (ORD. 1415 § 320, 2006); RETRIEVED, JUNE, 2020
[2] IID WSA BOILERPLATE

Table 2: Monthly Mean Temperature (°F) – Imperial, CA 10-Year, 30-Year & 100-Year (2008-2017, 1988-2017, 1918-2017)

	Jan			Feb			Mar			Apr		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	82	32	56	86	36	61	95	41	67	100	46	72
30-year	81	33	56	84	37	60	93	41	66	99	47	71
100-year	80	31	55	84	35	59	91	40	64	99	46	71
	May			**Jun**			**Jul**			**Aug**		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	107	53	78	115	61	87	114	69	92	114	67	91
30-year	106	54	79	113	60	86	114	68	92	113	69	92
100-year	105	52	78	113	59	86	114	68	92	113	68	91
	Sep			**Oct**			**Nov**			**Dec**		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	114	67	92	103	51	76	92	38	64	82	30	55
30-year	113	69	92	102	51	76	90	39	64	80	32	55
100-year	113	68	91	101	49	75	90	38	63	80	32	56

Source: IID Imperial Headquarters Station Record (Data provided by IID staff)

Table 3: Monthly Mean Rainfall (In) – Imperial, CA 10-Year, 30-Year & 100-Year (2008-2017, 1988-2017, 1918-2017)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
10-year	0.54	0.30	0.13	0.04	0.08	0.01	0.26	0.31	0.16	0.13	0.14	0.44	2.53
30-year	0.50	0.44	0.26	0.07	0.06	0.00	0.15	0.22	0.22	0.16	0.18	0.34	2.59
100-year	0.40	0.39	0.25	0.10	0.03	0.00	0.12	0.34	0.37	0.26	0.20	0.50	2.96

Source: IID WIS: CIMIS stations polygon calculation (Data provided by IID staff).

4.2 POPULATION TRENDS

The Imperial County Housing Element states, "According to the 2010 US Census, the total population of Imperial County was 174,528 in 2010, an increase of 23 percent since 2000. The population of the unincorporated county increased 15 percent over the same period, from 32,865 to 37,778. Heber was the most populated townsite in the unincorporated county, with a population of 4,275 in 2010; however, Salton City saw the most growth from 2000 to 2010. The Salton City population increased from 944

residents to 3,763, an increase of 299 percent.[3]" Refer to Table indicated below titled Population Trends identifies the unincorporated county.

The Southern California Association of Governments (SCAG) prepares a population forecast as part of its Regional Transportation Plan/Sustainable Growth Strategy. The population in the unincorporated areas of the county grew nearly 80 percent from 2010 to 2020 and another 26 percent from 2020 to 2035. Refer to Table 4 for population projections for the unincorporated county and Imperial County as a whole for 2020 and 2035."[4]

Table 4: Unincorporated Population Trend[5]

Year	2000	2010	2020	2035
Population	32,865	37,778	67,900	73,400

Imperial County Housing Element, 2013

5 WISTER SOLAR ENERGY PROJECT DESCRIPTION

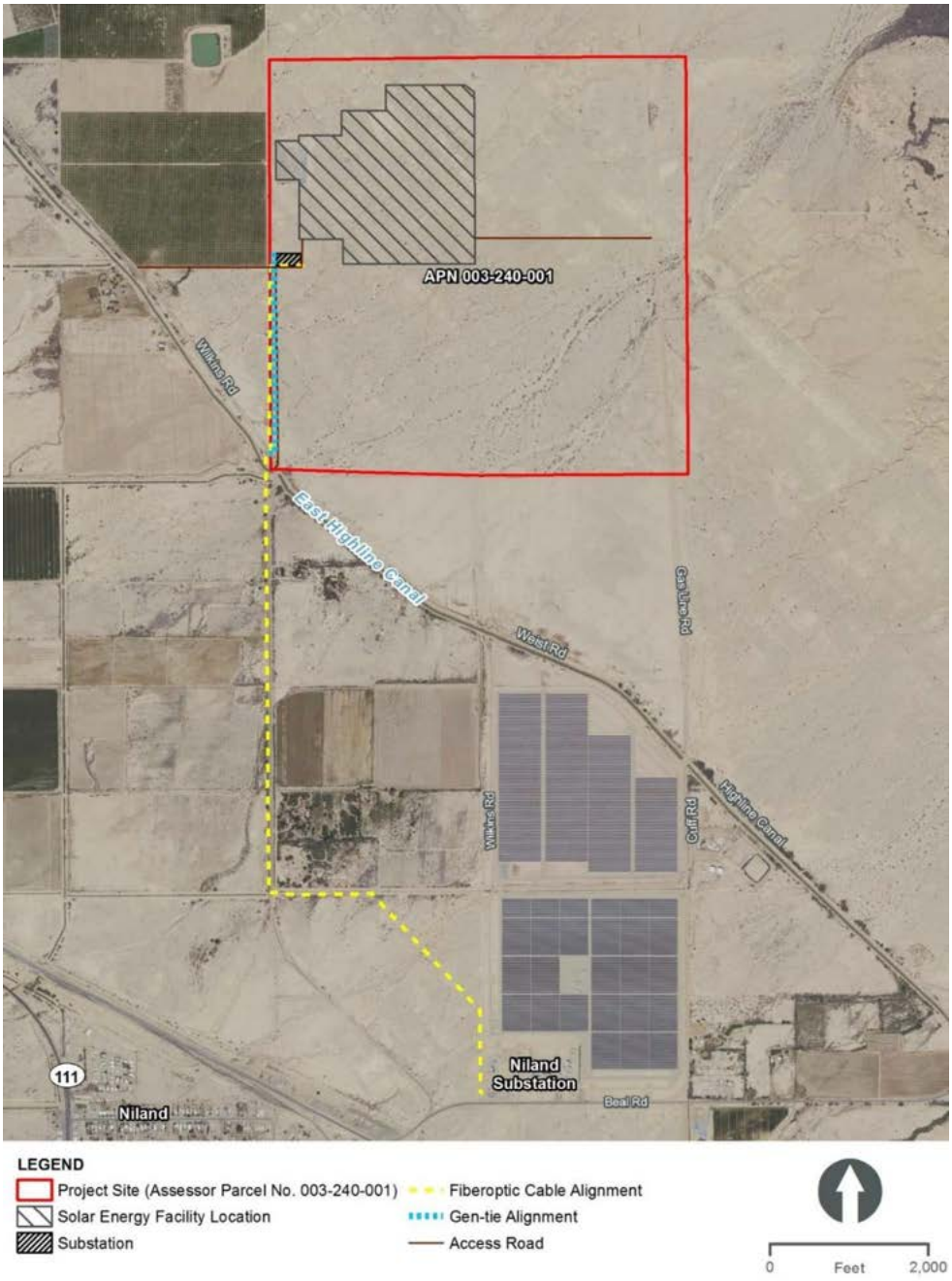
5.1 PROJECT LOCATION

5.1.1 Solar Energy Facility and Gen-Tie Line

The Project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County. The Project site is located on one parcel of land identified as Assessor's Parcel Number 003-240-001. The parcel is comprised of approximately 640 acres of land and is currently zoned Open Space/Preservation with a geothermal overlay (S-2-G). The proposed solar energy facility component of the project would be located on approximately 100 acres within the northwest portion of the larger 640-acre project site parcel. More specifically, the Project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (physical area where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road. Figure 2, below, shows the location and alignment of key associated infrastructure.

[3] http://www.icpds.com/CMS/Media/3_ImperialCountyHE_-FINAL_9-27-13.pdf, Retrieved June, 2020
[4] http://www.icpds.com/CMS/Media/3_ImperialCountyHE_-FINAL_9-27-13.pdf, Retrieved June, 2020
[5] http://www.icpds.com/CMS/Media/3_ImperialCountyHE_-FINAL_9-27-13.pdf, Retrieved June, 2020

Figure 2: Project Location, Depicting Fiberoptic Cable Line Route & Substation



5.2 PROJECT OBJECTIVES

- Construct, operate and maintain an efficient, economic, reliable, safe and environmentally sound solar-powered electricity generating facility.
- Help meet California's Renewable Portfolio Standard (RPS) requirements, which require that by 2030, California's electric utilities are to obtain 50 percent of the electricity they supply from renewable sources.
- Generate renewable solar-generated electricity from proven technology, at a competitive cost, with low environmental impact, and deliver it to the local markets as soon as possible.
- Develop, construct, own and operate the Wister Solar Energy Facility, and ultimately sell its electricity and all renewable and environmental attributes to an electric utility purchaser under a long-term contract to meet California's RPS goals.
- Utilize a location that is in close proximity to an existing switching station and powerlines.
- Minimize and mitigate any potential impact to sensitive environmental resources within the project area.

5.3 PROJECT CHARACTERISTICS

The proposed Project involves the construction and operation of a 20-Megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres within APN No. 003-240-001 (privately-owned land) north of Niland. The Facility would be comprised of solar PV panels on single-axis horizontal trackers, an on-site 92-kV power substation (a.k.a. "Wister Substation"), power inverters, power transformers, and underground electrical cables. depicts the proposed site plan.

The power produced by the Facility would be conveyed to the local power grid via the on-site 92-kV substation (hereafter referred to as the "Wister Substation"), which will be tied directly to the Imperial Irrigation District's 92-kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92-kV "K" line. The Project Applicant has secured a Power Purchase Agreement (PPA) with San Diego Gas and Electric for the sale of power from the Facility.

5.3.1 Wister Substation

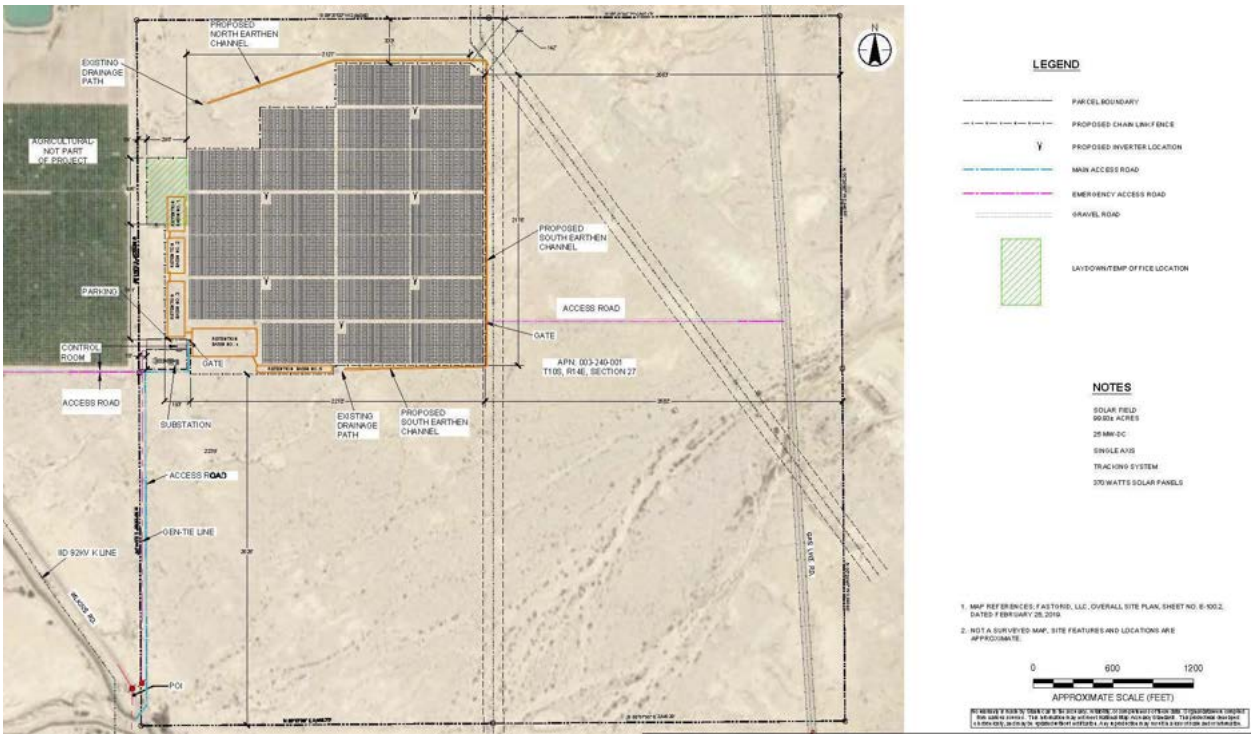
The proposed Wister Substation would be a new 92/12-kV unstaffed, automated, low-profile substation. The dimensions of the fenced substation would be approximately 300 feet by 175 feet. The enclosed substation footprint would encompass approximately 1.2 acres of the approximately 640-acre project parcel, and it will be located at the northwest quarter of the parcel, immediately southwest of the solar field. The California Building Code and the Institute of Electrical and Electronics Engineers (IEEE) 693, Recommended Practices for Seismic Design of Substations, will be followed for the substation's design, structures, and equipment.

5.3.2 Fiberoptic Cable

A proposed fiberoptic line from the proposed Wister Substation would be connected with the existing Niland Substation approximately two miles to the south, which would then be added to connect the proposed Wister Substation to the region's telecommunications system. Overall, this would provide Supervisory Control and Data

Acquisition (SCADA), protective relaying, data transmission, and telephone services for the proposed Wister Substation and associated facilities. New telecommunications equipment would be installed at the proposed Wister Substation within the Mechanical and Electrical Equipment Room (MEER). The proposed fiber optic telecommunications cable would utilize existing transmission lines to connect to the Niland Substation. The length of the proposed fiber optic telecommunications cable route would be approximately two miles. Figure 4, below, shows the preliminary site plan.

Figure 3: Site Plan



5.3.3 Gen-Tie Line

A proposed gen-tie line would connect the Wister Substation to the POI at the existing IID 92-kV "K" line. The proposed gen-tie line would originate at the proposed Wister substation and would terminate at the POI, at a distance of approximately 2,500 feet to the south-southwest. Steel poles, standing at a maximum height of 70 feet tall, will be spaced approximately every 300 feet along the route, and would support the 92-kV conductor and fiberoptic cable to the POI. Construction of the 2,500-foot gen-tie line to the POI would utilize overland travel via an all-weather improved access road along the entire route.

5.3.4 Groundwater Well

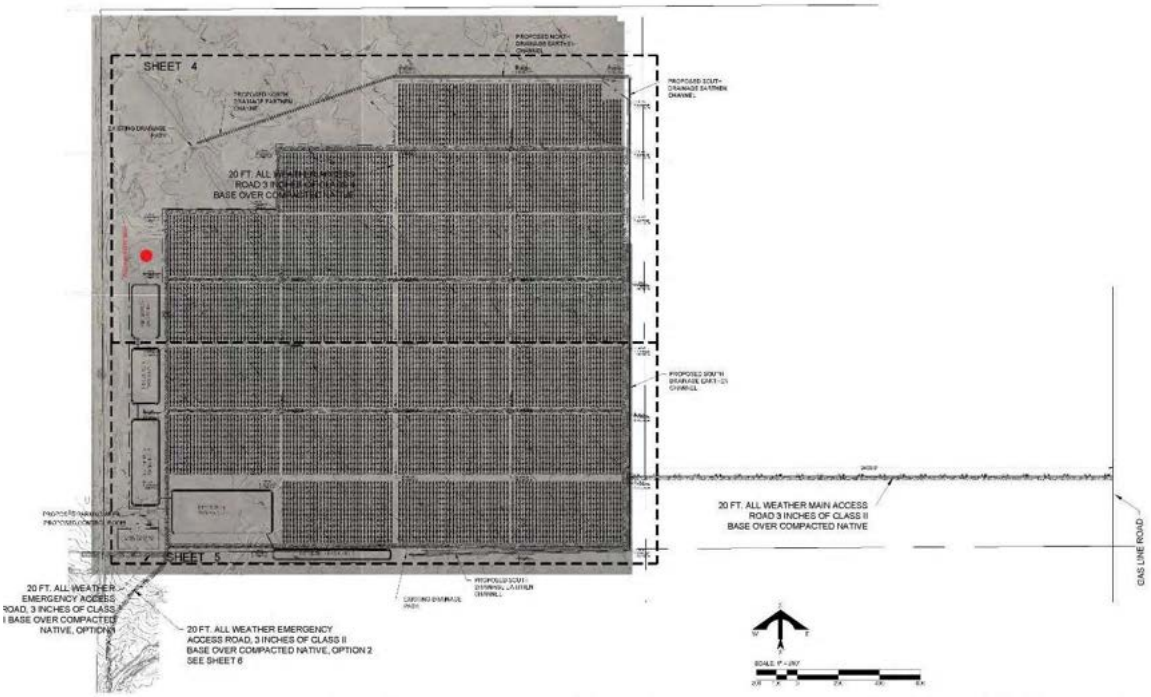
There is groundwater onsite. The proposed Project may utilize the groundwater for project construction, and potentially limited operational activities. A groundwater well would be constructed and operated on the existing geothermal well pad (and proposed Project construction staging area) located in the north-western portion of the project site, See Figure 5.

5.4 PROJECT CONSTRUCTION

5.4.1 Construction Sequence

Construction activities would be sequenced and conducted in a manner that addresses storm water management and soil conservation. During construction, electrical equipment would be placed in service at the completion of each 2,500-kW power-block. The activation of the power-blocks is turned over to interconnection following the installation of transformer and interconnection equipment upgrades. This in-service timing is critical because PV panels can produce power as soon as they are exposed to sunlight, and because the large number of blocks and the amount of time needed to commission each block requires commissioning to be integrated closely with construction on a block-by-block basis.

Figure 4: Proposed Groundwater Well Location



Construction would generally occur during daylight hours, Monday through Friday. However, non- daylight work hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. For example, during hot weather, it may be necessary to start work earlier to avoid pouring concrete during high ambient temperatures. If construction is to occur outside of the County's specified working hours, permission in writing will be sought at the time. Construction of the proposed project would occur in phases beginning with site preparation and grading and ending with equipment setup and commencement of commercial operations. Overall, construction would consist of three major phases over a period of approximately 6-9 months:

1. Site Preparation, which includes clearing grubbing, grading, service roads, fences, drainage, and concrete pads; (1 month)
2. PV system installation and testing, which includes installation of mounting posts, assembling the structural components, mounting the PV modules, wiring; (7 months) and

3. Site clean-up and restoration. (1 month)

Construction activities would be conducted in a manner consistent with Imperial County Codified Ordinance. Noise generating sources in Imperial County are regulated under the County of Imperial Codified Ordinances, Title 9, Division 7 (Noise Abatement and Control). Noise limits are established in Chapter 2 of this ordinance. Under Section 90702.00 of this rule, average hourly noise in residential areas is limited to 50 to 55 dB(A) from 7 AM to 10 PM, and to 45 to 50 dB(A) from 10 PM to 7 AM. The Applicant will also obtain coverage under the State Water Resources Control Board General Storm Water NPDES Permit for Construction Activities and prepare a Storm Water Pollution Prevention Plan (SWPPP) to prevent adverse water quality impacts during construction. Similarly, the Applicant will obtain the necessary permits from California Department of Fish and Wildlife should there be a need to obtain a Section 1602 Streambed Alteration Agreement during construction.

5.4.2 WORKFORCE

The on-site workforce would consist of laborers, electricians, supervisory personnel, support personnel and construction management personnel. The average number of construction workers would be approximately 50-60 people per day.

5.4.3 MATERIALS

The proposed Project would require general construction materials (i.e., concrete, wood, metal, fuel, etc.) as well as the materials necessary to construct the proposed PV arrays. Most construction waste is expected to be non-hazardous and to consist primarily of cardboard, wood pallets, copper wire, scrap steel, common trash and wood wire spools. Although field equipment used during construction activities could contain various hazardous materials (i.e., hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, etc.), these materials are not considered to be acutely hazardous and would be used in accordance with the manufacturer's specifications and all applicable regulations.

Each PV module would be constructed out of poly-crystalline silicon semiconductor material encapsulated in glass. Construction of the PV arrays will include installation of support beams, module rail assemblies, PV modules, inverters, transformers, and underground electrical cables. Concrete will be required for the footings, foundations, pads for transformers, and substation equipment. Concrete will be purchased from a local supplier and transported to the proposed project site by truck. The PCS housing the inverters will have a precast concrete base. Final concrete specifications will be determined during detailed design engineering in accordance with applicable building codes.

5.4.4 SITE PREPARATION

Project construction would include the renovation of existing dirt roads to all-weather surfaces (to meet the County standards) from Wilkins Road just south of the orchard, and a new road would be graded west from Gas Line Road and a new road graded north from the southwest corner of the parcel off Wilkins Road. Construction of the proposed project would begin with clearing of existing brush and installation of fencing around the project boundary. A 20' road of engineering-approved aggregate will surround the site within the fencing. Site preparation would be in compliance and consistent with the above-cited SWPPP.

Material and equipment staging areas would be established on-site within an approximate 4-acre area. The staging area would include an air-conditioned temporary construction office, a first-aid station and other temporary facilities including, but not limited to, sanitary facilities, worker parking, truck loading and unloading, and a designated area for assembling the support structures for the placement of PV modules. The location of the staging area would change as construction progresses throughout the project site. The project construction contractor would then survey, clear and grade road corridors in order to bring equipment, materials, and workers to the various areas under construction within the project site. Road corridors buried electrical lines, PV array locations and locations of other facilities may be flagged and staked in order to guide construction activities. In addition, water truck reloading stations would be established for dust control.

5.4.5 CONSTRUCTION WATER REQUIREMENTS

Construction of the proposed Project is anticipated to take approximately 6-9 months. from the commencement of the construction process to complete. Construction water needs would be limited to earthwork, soil conditioning, dust suppression, and compaction efforts. During construction, on-site groundwater is proposed to be utilizedwill be used. It is estimated that approximately 900,000 gallons (2.76 acre-feet [af]) of water (40,909 gallons per work day) would be required during the first phase of construction for site preparation and grading, The second phase of construction (PV system installation and testing) would take approximately 6 months and require approximately 2,130,000 gallons (6.54 af) of water (16,136 gallons per work day). Water would drop to approximately 300,000 gallons (0.92 af) (13,636 gallons per workday) of water during the last phase of the construction (clean-up and restoration). The proposed project would require a total of 3,330,000 gallons (10.22 af) of water during the construction period. To the extent necessary, non-potable water would be obtained from the Golden State Water Company's hydrant/meter near 1st Street and Memphis Street in Niland and trucked to the project site to meet construction water needs.

5.4.6 DUST SUPPRESSION

The Project would comply with all applicable air pollution control regulations. During the construction phase of the project, standard dust control measures would be used to mitigate emissions of fugitive dust. These may include watering or applying dust palliatives with low environmental toxicity to suppress dust during construction.

5.4.7 OPERATIONS AND MAINTENANCE

Once fully constructed, the proposed Project would be operated on an unstaffed basis and be monitored remotely, with periodic on-site personnel visitations for security, maintenance and system monitoring. Therefore, no full-time site personnel would be required on-site during operations, and employees would only be on-site four times per year to wash the panels.

As the project's PV arrays produce electricity passively, maintenance requirements are anticipated to be very minimal. Any required planned maintenance activities would generally consist of equipment inspection and replacement and would be scheduled to avoid peak load periods. Any unplanned maintenance would be responded to as needed, depending on the event.

Estimated annual water consumption for operation and maintenance of the proposed Project, including periodic PV module washing, would be approximately 0.81-acre feet annually (af/y). As discussed previously, the project

will use groundwater from an on-site groundwater well. Alternatively, non-potable water would be obtained from the Golden State Water Company's hydrant/meter near 1st Street and Memphis Street in Niland and trucked to the Project site.

5.4.8 FACILITY DECOMMISSIONING

Solar equipment has a lifespan of approximately 20 to 25 years. At the end of the Project's operation term, the Applicant may determine that the Project should be decommissioned and deconstructed. Should the Project be decommissioned, concrete footings, foundations, and pads would be removed using heavy equipment and recycled at an off-site location. All remaining components would be removed, and all disturbed areas would be reclaimed and recontoured.

6 PREPARATION OF SB 610 ASSESSMENTS – GROUNDWATER

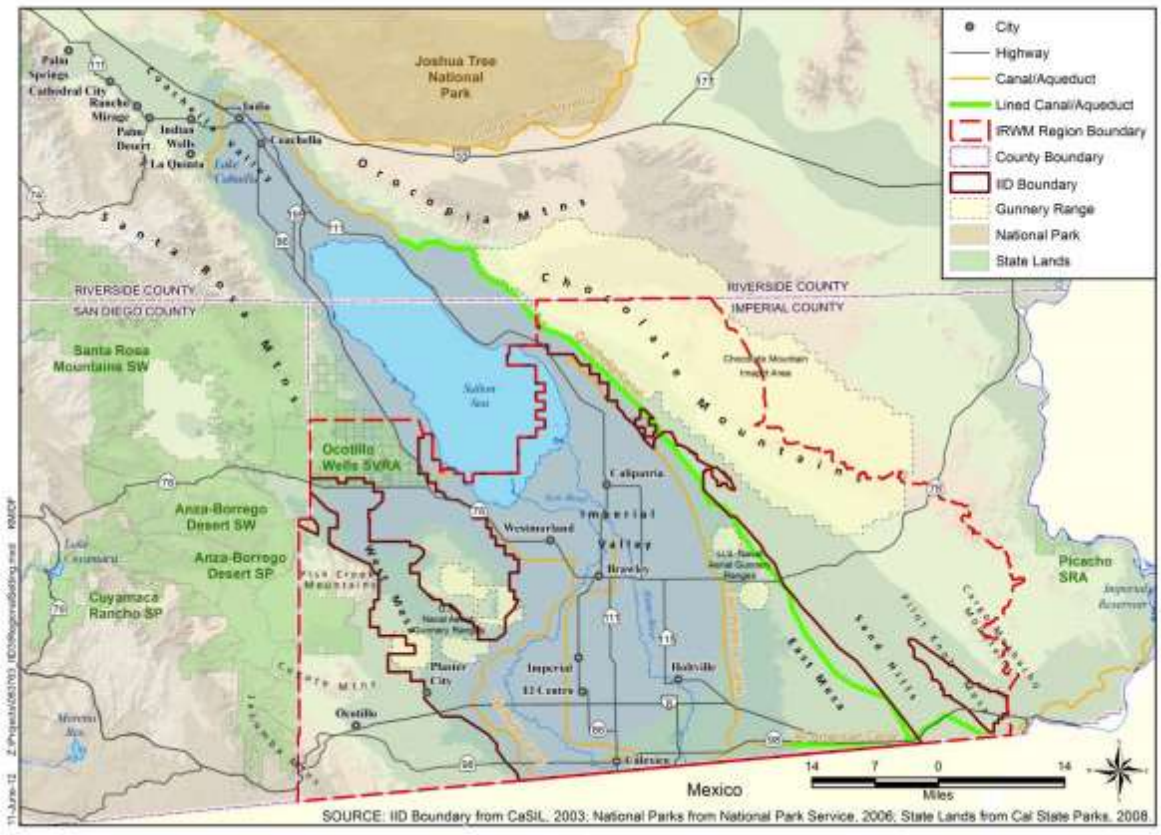
6.1 EXECUTIVE SUMMARY

6.2 IMPERIAL INTEGRATED REGIONAL WATER MANAGEMENT PLAN (OCTOBER 2012)

Imperial County has an Integrated Regional Water Management Plan (IRWMP) which was adopted in October of 2012, . As stated in the IRWMP, "…The Imperial IRWMP area lies within the Salton Trough of southern California as shown on Figure X. The Salton Trough is the dominant feature of the Colorado Desert geomorphic province of California. The trough is about 130 miles long and up to 70 miles wide, and is generally considered the northwesterly landward extension of the Gulf of California (Loeltz et al., 1975). The term Salton Basin (Basin) applies to the broad region draining directly into the Salton Sea. The Imperial Valley lies in the central part of the Basin south of the Salton Sea. Most of the IID service area overlies the area defined as the Imperial Valle. The Salton Sea is a critical component of the Pacific Flyway migratory corridor as it is an essential overwintering site for thousands of migratory waterfowl. Its marsh areas provide significant habitat for the endangered Yuma clapper rail…[6]"

[6] https://www.iid.com/water/water-supply/water-plans/imperial-integrated-regional-water-management-plan, Retrieved , June 2020

Figure 5: Imperial IRWMP Area



The IRWMP encompasses three principal physiographic and hydrologic areas: (1) the Imperial Valley which lies within the valley floor generally inside the boundaries of the Westside Main and East Highline Canals and north of the Mexico; (2) the East Mesa which is generally east of the East Highline Canal; and (3) the West Mesa generally west of the Westside Main canal. The proposed Project is in the East Mesa, which is in the southeastern portion of the Salton Basin. The IRWMP describes this area as the broad area east of the East Highline Canal and east margin of pre-historic Lake Cahuilla, and west of the Sand Hills Fault. The East Mesa is also roughly bordered by the Coachella Canal on the east and the AAC on the south. The East Mesa is an alluvial surface that slopes gently west-southwest, covered with thin veneers of wind-blown sand. The East Mesa aquifer is chiefly unconfined, homogenous, and composed of coarsegrained deposits of gravels, sands, silts, and silty clays that were deposited by the Colorado River. Faults in East Mesa (e.g., San Andreas Fault and Algodones Fault) act as partial barriers to the westward flow of groundwater from this area. The Calipatria Fault also crosses a small portion of the East Mesa along the southwest margin and also impedes the flow of groundwater out of East Mesa.

According to the IRWMP, the East Mesa has the greatest amount of available data on groundwater quality, and it includes a large number of groundwater wells. It also has a small number (12) of water supply wells, some of which are used for agricultural purposes. It has two aquifers: a shallow unconfined zone from 0 to 85 feet and a deeper semi-confined zone from 85 to 160 feet (Crandall, 1983). The aquifers were differentiated based on chemistry of their waters and the perforated interval of the particular well. The Table below provides the analysis and characterization of the water quality[7].

Table 5: East Mesa Water Quality from IRWMP

Table B-1. East Mesa Water Quality

	Zone A (85 to 160 Feet)		Zone B (0 to 85 Feet)	
Chemical Character	Sodium Chloride	15 wells	Sodium Chloride	13 wells
	Sodium Sulfate	3 wells	Sodium Sulfate	10 wells
	Sodium Bicarbonate	0 wells	Sodium Bicarbonate	6 wells
pH	Range: 7.4- 8.6	17 wells	Range: 4.3-11.2	17 wells
	Common 7.4- 8.6		Common 6.9- 9.0	
	4.3- 6.4	0 wells	4.3- 6.4	4 wells
	6.5- 7.5	1 well	6.5- 7.5	5 wells
	7.6- 8.6	16 wells	7.6- 8.6	11 wells
	8.7- 9.7	0 wells	8.7- 9.7	3 wells
	9.8-11.2	0 wells	9.8-11.2	4 wells
TDS (ppm)	Range 589-2860	17 wells	Range: 250-2620	27 wells
	Common: 750- 995	9 wells	Common: 434- 787	16 wells
	589	1 well	250	1 well
	1270	1 well	882-1413	7 wells
	1710-2860	6 wells	1750-2620	3 wells
	7112	1 well	7151	1 well
F (ppm)	Range: 0.2-1.4	10 wells	Range 0.1-1.6	22 wells
	1.9	1 well	3	1 well
B	0.26 and 0.46	2 wells	0.41	1 well

Source: Crandall, 1983

According to the IRWMP, hydraulic conductivity values for the shallow and deeper aquifers values varied from a low value of 0.5 foot per day in the central irrigated area of the to a high value of 80 feet per day in East Mesa, where sediments are highly transmissive sands and gravels. Therefore, the IRWMP concludes that on average, new wells in the East Mesa would be expected to have higher yields than those in the West Mesa[8].

[7] https://www.iid.com/water/water-supply/water-plans/imperial-integrated-regional-water-management-plan, Retrieved, June 2020.

[8] https://www.iid.com/water/water-supply/water-plans/imperial-integrated-regional-water-management-plan

The IRWMP states, "Data available in the IRWMP for wells in the East Mesa include well yields and specific capacities. Reported well yields varied from 80 to 3,000 gpm, depending on depth and location. In general, yields in excess of 900 gpm were associated with depths of 200 feet or more. Specific capacity data reported for seven wells in the East Mesa, varied from 0.8 to 85 gpm/ft. The well with the highest specific capacity was located at the junction of the AAC and Coachella Canal. Specific capacities were highest to the east, and diminished to the west. Higher specific capacities were associated with wells deeper than 200 feet (Crandall, 1983). Consistent with the overall geologic model for the Imperial IRWMP area, the highest transmissivities are associated with the East and West Mesas where aquifer formations are generally more homogenous and include a much higher proportion of coarse sands and gravels then the Imperial Valley floor, allowing groundwater to move at higher rates."[9]

The direction of groundwater movement in the East Mesa is controlled primarily by contours of groundwater level elevation; the rate of groundwater movement is proportional to the gradient or slope of the groundwater table. Groundwater levels and flow have changed with lining of the canals; therefore, two temporal sets of water level data are presented: one for 1960 representing conditions with recharge from the canals and one for 1993 after the southerly portions of the Coachella Canal was lined. Lining of portions of the AAC, generally about six miles east of the East Highline Canal to about five miles east of the Coachella Canal was not started until 2006 so neither set of maps reflect the reduction of seepage from the AAC. A portion of the AAC still contributes recharge to East Mesa. Additional details groundwater contour maps are also provided for both the East and West Mesas.

6.3 TITLE 9, DIVISION 21, WATER WELL REGULATION [DIVISION 21 ADOPTED NOVEMBER 24, 1998 (AMENDED OCTOBER 31, 2006)]

TITLE 9, DIVISION 21, WATER WELL REGILATION, DIVISION 21, § 92102.00 PERMIT(S) REQUIRED

Imperial County Ordinance XXXXX states, in relevant part, that "No person shall (1) drill a new well, (2) activate a previously drilled but unused well, (unused shall mean a well or wells that have not been used for a 12 month) period by installing pumps, motors, pressure tanks, piping, or other equipment necessary or intended to make the well operational, (3) increase the pumping capacity of a well, or (4) change the

[9] https://www.iid.com/water/water-supply/water-plans/imperial-integrated-regional-water-management-plan

use of a well, without first obtaining a Conditional Use Permit (CUP) through the County Planning & Development Services Department. The pumping capacity shall mean the "permitted amount" or in the absence of a permit the annual acreage, over 3-year period." Therefore, the Applicant would need to obtain a Conditional Use Permit from the County for the onsite well.

Additionally, Imperial County Ordinance XXXXX states that:

"(B) Well Construction Permit. No person shall dig, bore, drill, deepen, enlarge, refurbish, or destroy a water well, cathodic protection well, observation well, monitoring wells or any other excavation that intersects ground water without first obtaining a well construction permit through the Planning & Development Services Department…" The Applicant would also have to obtain a Well Construction Permit from the County.

6.3.1 TITLE 9, DIVISION 21, WATER WELL REGILATION, DIVISION 21, § 92102.05 SUSPENSION AND REVOCATION

A. Circumstances for such action: Enforcement agency may suspend or revoke any permit issued pursuant to this Ordinance, whenever it finds that the permittee has violated any of the provisions of this Ordinance, or has misrepresented any material fact in his/her application or any supporting documents for such a permit. Prior to ordering any such suspension or revocation, the enforcement agency shall give permittee an opportunity for a hearing thereon, after reasonable notice. The hearing shall be before the enforcement agency, the director, or his designated representative.

B. Consequences: No person whose permit has been suspended or revoke shall continue to perform the work for which the permit was granted until, in case of suspension, such permit has been reinstated by the enforcement agency.

C. Additional Work: Upon suspending or revoking any permit, the enforcement agency may order permittee to perform any work reasonably necessary to protect the ground water from pollution or contamination, if any work already done by permittee has left a well in such a condition as to constitute a hazard to the quality of the ground water. No permittee or person who has obtained a permit issued pursuant to this Ordinance shall fail to comply with such order

In the event the applicant be denied the Conditional Use Permit for the groundwater well, The applicant will have to take the following actions. Find another legal water source per California Water Code. The applicant will then need to submit a revised Water Supply Assessment to the Lead Agency.

This project is outside the IID's service area and therefore the IID cannot service the project with water.

6.3.2 TITLE 9, DIVISION 21, WATER WELL REGILATION, DIVISION 21, § 92103.01 REPORTS

Completion Reports: The driller shall provide the enforcement agency a completion report within 30 days of the completion of any well construction, reconstruction, or destruction job. A. Submittal of State "Report of Completion": A copy of the "Report of Completion" (Driller's well log) required by California Water Code, Section 13751, shall be submitted by the well driller to the enforcement agency within 30 days of construction or destruction of any well (except driven wells). This report shall document that the work was completed in accordance with all applicable standards and additional permit conditions. This section shall not be deemed to release any person from the requirement to file said report with the State Department of Water Resources. B. Confidentiality of Report: With the exception of the well driller's name, the date the well was drilled and the well yield, all information contained in this report shall remain "Confidential". C. Other Agency's Requirements: Nothing in this Ordinance shall be deemed to excuse any person from compliance with the provisions of California Water Code, Section 13752, relating to notices and reports of completion or any other federal, state, or local reporting regulations.

6.3.3 TITLE 9, DIVISION 21, WATER WELL REGILATION, DIVISION 21, § 92103.00 REGISTRATION OF WELL

Any person who uses a new or existing well shall first register said well with the Imperial County Planning & Development Services Department. If a well is under an active conditional use permit, the well shall be deemed to be registered. Any well that is not under an Imperial County CUP shall be registered with the Planning & Development Services Department and the State pursuant to California Water Code, Section 13750.. An application to register any well shall be filed with the Planning & Development Services Department and said application shall contain all information required upon said form.

6.3.4 TITLE 9, DIVISION 21, WATER WELL REGILATION, DIVISION 21, § 92103.02 WELL STANDARDS

Except as otherwise specified, the standards for the construction, repair, reconstruction, alteration, reactivation, operation, or abandonment of wells shall be as set forth in: A. The California Department of Water Resources Bulletin 74-81 entitled, "Water Well Standards, State of California", except as modified by subsequent supplements or revisions issued by the Department of Water Resources. Division 21 Adopted November 24, 1998 (Amended October 31, 2006) B. The California Department of Water Resources Bulletin 74-90 and any subsequent supplements or revisions issued by the Department of Water Resources. C. The following factors, to the extent necessary to avoid conditions of overdraft, subsidence, well interference, water quality degradation, or other environmental degradation: 1. The type of use or uses served. 2. The number of users served. 3. Wasteful or inefficient use. 4. Water conservation activities. 5. Reasonable need of the extractor and other affected water users. 6. The quality of groundwater. 7. The affected groundwater basin or sub-basins. 8. Environmental impact as determined through the CEQA review. 9. Any other factors that the Planning & Development Services Department reasonably believes it should consider in order to reach an equitable result within the entire County in accordance with the provisions of this Ordinance, and of California Law.

6.4 COLORADO RIVER BASIN REGION OF CALIFORNIA (BASIN PLAN) (2019)[11]

For water quality planning and protection purposes, the Project is within the Colorado River Basin Region of the California Regional Water Quality Control Board. The Water Quality Control Plan for the Colorado River Basin (Basin Plan) is the Board's master plan for water quality protection. The Basin Plan identifies the waters in the Region, theor beneficial uses, and water quality objectives to protect those uses. The Basin Plan fulfills state and federal statutory requirements for water quality planning, thereby preserving and protecting ground and surface waters of the Colorado River Basin Region. The proposed Project is in the Imperial Valley Hydrologic Unit.

6.4.1 BENEFICIAL USE DESIGNATIONS OF AQUIFERS

[11] https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/docs/bp032014/r7_bp2019fullbp.pdf, Retrieved, June 2020

6.5 HISTORIC USE IN THE BASIN- RECORDS

The closest historical records of related to groundwater pumping on record belongs to the Western Mesquite Mines, with a ORDER R7-2014-0032, Waste Discharge Requirements And Monitoring And Reporting Program permit with the California Regional Water Quality Control Board Colorado River Basin Region. The Water Quality Control Plan for the Colorado River Basin Region of California (Basin Plan), which was adopted on November 17, 1993, and amended on November 16, 2012, designates the beneficial uses of ground and surface waters in this Region.

According to the IRWMP there is proof that farmers did use groundwater wells at one point to water crops, however there are no records on file at the County of Imperial of such permits. The majority of farmers rely on the Imperial Irrigation Districts water conveyance system for water deliveries.

The proposed well would be new and therefore has no other historical use. All water being pumped will from this proposed ground water well will be a net increase.

7 PROJECT WELL HYDRAULIC EVALUATION [13]

7.1 SURFACE WATER SYSTEM

Surface water features within 2 miles of the Proposed Well include natural drainages and manmade features including canals, laterals, IID drains and ponds/reservoirs. Natural drainages include Iris Wash and unnamed minor drainages, which convey runoff from the Chocolate Mountains to the Imperial Valley. These drainages ultimately flow towards the Salton Sea, which is the low point of the basin. All natural drainages are classified as intermittent (USFWS, 2020). Canals include the Coachella Canal and the East Highline Canal (Figure 3). Both canals deliver water from the All American Canal (AAC), located approximately 40 miles south of the Project. The Coachella Canal is located approximately 1.3 miles from the Proposed Well. The Coachella Canal was initially unlined in the Imperial Valley, which lead to water losses into the alluvial sediments. In the late 1970s, the first 49 miles of the Coachella Canal was replaced with a concrete lined channel. This end of this segment is located approximately 3.6 miles east southeast of the Proposed Well. In the mid-2000s, the remaining 36.5 miles of the Coachella Canal (including the section near the Project; see Figure 3) was replaced with a concrete lined channel, reducing seepage losses into alluvial sediments. The East Highline Canal is located approximately 0.5 miles from the Proposed Well.

[13] STANTEC STUDY

Furthermore, the East Highline Canal crosses the southwest corner of the Project (Figure 1). The East Highline Canal is unlined and likely results in seepage to alluvial sediments. The water distribution system in the Imperial Valley, near the Project, include laterals and ponds for distribution and storage, respectively, and drains to convey unused water from distribution system, farmland, and discharging groundwater to the Salton Sea (IIRWMP, 2012). The East Highline Canal is downgradient from the Project though a seepage mound in the shallow aquifer may be present upgradient of the canal, as identified along unlined sections of the AAC and Coachella Canal (Loeltz et al., 1975).

Please identify and name the closest IID Drain to the Project site.

7.2 Aquifer Extent and Properties

Aquifers in the East Salton Sea Basin include alluvial aquifers, which are present as valley fill with maximum thicknesses of at least 400 feet (Willets et al., 1954). Water bearing units include unconsolidated Quaternary alluvium and semi-consolidated Tertiary to Quaternary alluvium. The groundwater storage capacity was estimated at 360,000 acre-feet (DWR, 1975). High permeability units likely include coarse sands and gravels, where present. Aquifer extents are bounded by outcropping bedrock in the Chocolate Mountains and possibly low-permeability fault zones such as the San Andreas Fault Zone, the Banning Mission Fault, and other unnamed faults. Specific to East Mesa, aquifers in this area are generally unconfined, homogenous, and composed of sediments deposited by the Colorado River (IIWMP, 2012). A geothermal test well was previously drilled at the Project by Ormat (well 12-27) to a depth of 3401 feet bgs. The shallow groundwater system was not specifically characterized during drilling and testing. However, static temperature logs from the well may indicate the presence of an aquifer zone as shallow as 40 to 50 feet bgs. Other aquifer zones are likely present but were not identified due to the limitations of temperature logs. Geothermal properties of the test well were non-economical, and the well was abandoned. The nearest East Mesa well with a lithological log is 12S/16E-9A, which is located 9 miles to the southwest of the Proposed Well. In the 1000-foot log, 61% of the thickness is dominated by sand, 34% dominated by clay and approximately 1% dominated by sandstone. Sand and clay intervals also include silts and gravels. Coarse sands and gravels, likely having high hydraulic conductivities, are intermittently present throughout the logged sequence. The perforated interval of the well was placed at 150-1,000 feet and the static water level was recorded at 154.5 feet bgs, which is an elevation of 65.5 feet bgs. Other nearby wells with lithological logs were completed in the Imperial Valley and contain higher percentages of clay (Loeltz et al., 1975).

7.3 RECHARGE

Groundwater recharge in the East Mesa area was historically dominated by seepage from the Coachella Canal, prior to replacement with concrete lined channels in the late 1970s and mid-2000s. Prior to lining, seepage from the 36.5-mile section near the Project has been estimated at 26,000 acre-feet per year. Unlined sections of the AAC continue to recharge the East Mesa groundwater aquifer. However, the unlined section is approximately 45 miles from the Project. In the absence of canal seepage, recharge to the East Mesa aquifer from direct precipitation is estimated to be near zero (Leroy Crandall and Associates, 1983). Groundwater recharge in the Chocolate Mountains may include mountain front recharge and stream flow runoff (Tompson et al., 2008). The Lawrence Livermore National Laboratory (LLNL) groundwater model (Tompson et al., 2008) estimated that recharge from precipitation within the Imperial Valley and portions of surrounding ranges was 0.019 inches/year, which is less than 1% of precipitation. Furthermore, the LLNL model did not include additional recharge along the mountain fronts. The 2013 groundwater model, which was updated by Argonne National Laboratory (ANL; Greer et al., 2013) estimated recharge at 0.056 inches/year in Imperial Valley and 7.2 inches/year along the mountain-front area of the Chocolate Mountain. This estimate of mountain-front recharge may not be supported by the estimated precipitation rates for the Chocolate Mountains (4-6 inches/year; PRISM, 2020). In 2003, the DWR classified the East Salton Sea Basin groundwater budget type as 'C', which indicates that groundwater data is insufficient to estimate the groundwater budget or groundwater extraction (DWR, 2003)

DISCHARGE AND EXTRACTION

Discharge from the East Salton Sea Basin includes springs, discharge into irrigation drains, and extractions from wells. Spring discharge, and water losses from associated vegetation, is likely limited based on the occurrence of few springs (see Figure 3). Irrigation drains in the Imperial Valley (including the western margin of the East Salton Sea Basin) primarily return excess irrigation water to the Salton but also function to remove discharging groundwater. Water well extraction rates were last estimated in 1952 at 6 acre feet/year (DWR, 1975). Due to the lack of development in this basin, current extraction rates may be similar. However, this statement is speculative due to a lack of recent information (DWR, 2003).

7.4 GROUNDWATER LEVELS

Groundwater levels in the vicinity of the Project have been influenced by the presence of the canal systems, including the Coachella Canal, East Highline Canal, and associated laterals and drains. Seepage from the unlined Coachella Canal created a groundwater mound in the shallow alluvial aquifer of East Mesa, with water levels rising over 70 feet in some areas (Loeltz et al., 1975). Groundwater level decline in the vicinity of the Coachella Canal has been monitored since the late 1970s when the first 49 miles of the earthen canal channel was replaced with a concrete channel. United States Geological Survey (USGS) well 11S/15E-23M, which is approximately 9 miles southeast of the Proposed Well (Figure 3), shows an asymptomatic groundwater level decline from 20.68 feet bgs in 1979 to approximately 50 feet bgs at present. The water level elevations as of March 2020 were approximately 70 feet amsl. No groundwater levels have been reported along the Coachella Canal section that was lined in the late 2000s. However, a similar asymptotic decline could be expected. Groundwater levels in Imperial Valley have been historically measured at two multi-level wells located approximately 6.5 to 7.5 miles southwest of the Proposed Well (11S14E30C and 11S14E19N; Figure 3). Water levels at these locations were within 10 feet of the ground surface in 1989. The groundwater elevation at that time was approximately 215 feet bmsl. Groundwater levels in the irrigated areas have been controlled by the drain systems (IIRWMP, 2012). Current groundwater levels, although sparse, generally agree with historical groundwater elevation distributions. Groundwater elevations are higher in mountainous areas and East Mesa and decline towards Imperial Valley and the Salton Sea. This distribution of groundwater elevations suggests groundwater flow directions roughly coincide with topography. However, the flow of groundwater and distribution of groundwater levels is likely influenced by faults, which act as barriers, and changes in transmissivity.

7.5 GROUNDWATER QUALITY

Groundwater quality in the East Salton Sea Basin is generally reported as poor and not suitable for domestic, municipal, or agricultural purposes (DWR, 2004). Water types include sodium chloride and sodium sulfate. Total dissolved solids (TDS) concentrations are reported as 356 to 51,632 mg/L, whereas the National Secondary Drinking Water Regulations limit TDS to 500 mg/L. Groundwater quality is generally considered better in the vicinity of the unlined canals due to the recharge of lower TDS water. The closest well to the Proposed Well with available water quality data is located 2 miles to the west (Loeltz et al.,

1975). A limited number of water quality constituents were measured in 1961, including pH (8.0), specific conductivity (19,200 µS/cm), bicarbonate (210 mg/L), chloride (6,050 mg/L), calcium-magnesium hardness (2,440 mg/L), and non-carbonate hardness 2,270 mg/L). The screened interval depth of this well is unknown.

The next closest well to the Proposed Well with available water quality data is an inactive USGS monitoring well (11S/14E-2A) located approximately 2.8 miles to the southeast (USGS, 2020). The well is located in a Basin and Range basin-fill aquifer. The total depth was 825 feet bgs, however, the depth of the screened interval is unknown. Water quality was measured in the late 1960s and early 1970s. The latest water quality sample that includes all major ions (calcium, magnesium, sodium, potassium, bicarbonate, sulfate and chloride) was collected in 1969. This sample had sodium-chloride type water and a TDS concentration of 1,760 mg/L. Furthermore, temperatures were elevated above ambient temperatures at 44.4°C.

8 PROJECT WATER DEMAND

Project Engineers estimate that the water usaged for the Project will be for construction, operational, mitigation measures and decommissioning of the Project. Water from the aquifer can be supplied to the project via the proposed well in accordance with County and State regulations. The Project is anticipated to use approximately **1.87** AFY Amortized **(see Table- 8) and associated tables below** for a summary of water usage to be supplied to the Project. The project will increase the demand for water from this water source by 100%.

Table 6: Wister Project Demands- Construction

Wister Water Project Demand		
Construction Needs		
Phases	Per Day in Gallons	ACFT/DAY
Phase 1	900,000	2.76
Phase 2 *	2,130,000	6.54
Phase 3 *	300,000	.92
Total	3,330,000	10.22

Table 7: Wister Project Demands- Operational Water Use

Wister Water Project Demand		
Operational Needs		
Phases	ACFT/YR	ACFT 30 YEAR PROJECT LIFE
Operational Water Needs, for Dust and Fire Suppression	1.37	41.1
Decommissioning Water	5	5

Table 8:Amortized Wister Project Demand

Wister Water Project Demand	
Amortized Wister Project Demand	
Phase	ACFT/YR Total for 30 Years
Construction	10.22
Operational	41.1
Decommissioning	5
Total	56.32/30=1.87 AFY

9 PROJECT SPECIFIC HYDROLOGIC EVALUATION

At the request of the Applicant, Stantec conducted a hydrological evaluation for the proposed Project. It also prepared a report with titled “Hydrological Evaluation, Wister Solar Development Project. June 8, 2020.” The report presents the findings of the evaluation. This following paragraphs summarize the findings.

The Wister Solar Development Project is located within the East Salton Sea Basin, which includes the Chocolate Mountains and the northeastern margin of the Imperial Valley (Figure 2). The groundwater storage capacity of the East Salton Sea Basin was estimated at 360,000 acre-feet. Groundwater usage in the East Salton Sea Basin is limited due to generally poor water quality and limited inhabitants. Extraction rates for the East Salton Sea Basin were last estimated in 1952 at 6 acre-feet/year, which is 3% of the estimated recharge rate of 200 acre-feet/year (DWR, 1975). Limited development in the East Salton Sea

Basin suggests that current extraction rates are similar. However, a lack of recent data limits the ability update this estimate. Furthermore, surface water from the Colorado River is conveyed into the Imperial Valley through a network of canals, laterals, and reservoirs, which has further reduced the need to develop groundwater resources. Groundwater in the East Salton Sea Basin is present in alluvial aquifers at depths up to several hundred feet, and with generally high transmissivities (Montgomery Watson, 1995). At the Project, groundwater may also be present in an alluvial aquifer 40-50 feet bgs. Historically, groundwater recharge was significant in the vicinity of the earthen lined Coachella Canal. The replacement of the canal with a concrete lined channel has greatly reduced recharge to the adjacent alluvial aquifers. Near the Project, the Coachella Canal was concrete lined in the late 2000s. The East Highline Canal remains earthen-lined, which likely leads to recharge into the shallow alluvial aquifers near the Project. Recharge from precipitation is generally limited due to low precipitation rates and high evaporation potential. Recharge rates may be higher in the Chocolate Mountains due to higher precipitation rates at higher elevations (4-6 inches/year; PRISM, 2020). Recharge events are likely limited to larger storm events, which may generate runoff and seepage along ephemeral channels. Recharge rates from precipitation were estimated at 0.019 inches/year (Tompson et al., 2008). The water needs for the Project are estimated at 10.22 acre-feet for construction in the first year, 1.37 acre-feet/year for the subsequent 25 to 30 years of operation, and 5 acre-feet for decommissioning at the end of operations (Table 7). Overall, the proposed extraction for the Project are significantly lower than recharge rates in an area where groundwater usage is limited.

10 PROJECT SPECIFIC PERMITTING REQUIREMENTS

Construction activities would be sequenced and conducted in a manner that addresses storm water management and soil conservation. During construction, electrical equipment would be placed in service at the completion of each 2,500-kW power-block. The activation of the power-blocks is turned over to interconnection following the installation of transformer and interconnection equipment upgrades. This in-service timing is critical because PV panels can produce power as soon as they are exposed to sunlight, and because the large number of blocks and the amount of time needed to commission each block requires commissioning to be integrated closely with construction on a block-by-block basis.

Construction would generally occur during daylight hours, Monday through Friday. However, non- daylight work hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. For example, during hot weather, it may be necessary to start work earlier to avoid pouring concrete during high ambient temperatures. If construction is to occur outside of the County's specified

working hours, permission in writing will be sought at the time. Construction of the proposed project would occur in phases beginning with site preparation and grading and ending with equipment setup and commencement of commercial operations. Overall, construction would consist of three major phases over a period of approximately 6-9 months:

4. Site Preparation, which includes clearing grubbing, grading, service roads, fences, drainage, and concrete pads; (1 month)
5. PV system installation and testing, which includes installation of mounting posts, assembling the structural components, mounting the PV modules, wiring; (7 months) and
6. Site clean-up and restoration. (1 month)

Construction activities would be conducted in a manner consistent with Imperial County Codified Ordinance. Noise generating sources in Imperial County are regulated under the County of Imperial Codified Ordinances, Title 9, Division 7 (Noise Abatement and Control). Noise limits are established in Chapter 2 of this ordinance. Under Section 90702.00 of this rule, average hourly noise in residential areas is limited to 50 to 55 dB(A) from 7 AM to 10 PM, and to 45 to 50 dB(A) from 10 PM to 7 AM.

10.1 STATE PERMITS REQUIRED

The State Water Resources Control Board and the Regional Water Quality Control Board (Region 7) regulate potential water quality impacts from discharges of wastes, including storm water runoff and wastewater runoff from the site from O&M activities. The Applicant will have to obtain coverage under the State Water Resources Control Board General Storm Water NPDES Permit for Construction Activities and prepare a Storm Water Pollution Prevention Plan (SWPPP) to prevent adverse water quality impacts during construction.

The California Department of Fish and Wildlife (CDFW) is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the California Fish and Game Code (F&GC) requires that the CDFW be consulted if the proposed Project has the potential to adversely impact a stream and thereby wildlife resources that depend on a stream for continued viability (F&GC Division 2, Chapter 5, section 1600-1616). A Section 1602 Lake or Streambed Alteration Agreement may be required for the Project, should the CDFW determine that the proposed Project may do one or more of the following:

- 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 debris, waste or other materials that could pass into any river, stream or lake, or
- Remove or disturb vegetation and/or habitat.

For the purposes of clarification, a stream is defined by CDFW as "a body of water that flows perennially or episodically and that is defined by the area in which water currently flows, or has flowed, over a given course during the historic hydrologic regime, and where the width of its course can reasonably be identified by physical or biological indicators." The historic hydrologic regime is defined as circa 1800 to the present (CDFW 2010). The East Highline Canal is a Water of the United States (federal jurisdiction). There may be also nearby IID Drains that are also jurisdictional waters. Therefore, the Applicant should, at a minimum, delineate jurisdictional waters that may be affected by the Project (during and post construction), and consult with CDFW to determine whether a Section 1602 Streambed Alteration Agreement is required. Also, it should also consult with the Regional Water Board to determine whether Clean Water Act Section 401 Water Quality Certification is required to prevent adverse water quality impacts as well.

11 PROJECT WATER SUPPLY

According to the Hydrological Evaluation, "The groundwater storage capacity of the East Salton Sea Basin was estimated at 360,000 acre-feet. Groundwater usage in the East Salton Sea Basin is limited due to generally poor water quality and limited inhabitants. Extraction rates for the East Salton Sea Basin were last estimated in 1952 at 6 acre-feet/year, which is 3% of the estimated recharge rate of 200 acre-feet/year (DWR, 1975).[14]" The project amortized over a 30-year term water demand is assessed at 56.32 ACFT TOTAL, divided by 30 Years equates to 1.88 ACFT/YR over 30 Years. Although the basin contains a groundwater storage capacity of 360,000 acre-feet, with the recharge rate of 200 ACFT per year it is up to the local enforcement agencies to police the amount of water allowed to the applicant. The applicant is subject to all Local, State, and Federal water laws. In sum, the aquifer beneath the site is capable of serving the water demands of the project.

[14] Hydrological Evaluation, Wister Solar development Project, June, 2020

12 SUMMARY AND CONCLUSIONS

- The proposed Project has an estimated total water demand of 56.32 AF or AFY amortized over a 30-year term). Thus, the proposed Project demand is an increase of AFY from the historical 10-year average or percent (100 %)than the historic 10-year average.
- Based on the amount of groundwater within the basin and the recharge rate of 200 acre-feet/year the project supply is able to meet the project demand of the project.
- Based on the Environmental Impact Report (EIR) prepared for this proposed Project pursuant to the CEQA, California Public Resources Code sections 21000, *et seq*., the Lead Agency hereby finds that the IID projected water supply will be sufficient to satisfy the demands of this proposed Project in addition to existing and planned future uses, including agricultural and non-agricultural uses for a 30-year Water Supply Assessment period and for the year proposed Project life.
- Permitting, The applicant is subject to all Local, State and Federal Laws during construction and operations for the Wister Solar Development Project.
- Approval of Conditional Use Permit – Groundwater Well. Pursuant to Title 9 Division 21: Water Well Regulations, §92102.00, the Applicant will be required to obtain a Conditional Use Permit for the proposed on-site groundwater well. As required by §92102.00, no person shall (1) drill a new well, (2) activate a previously drilled but unused well, (unused shall mean a well or wells that have not been used for a 12 month) period by installing pumps, motors, pressure tanks, piping, or other equipment necessary or intended to make the well operational, (3) increase the pumping capacity of a well, or (4) change the use of a well, without first obtaining a Conditional Use Permit (CUP) through the County Planning & Development Services Department.
- It is suggested that the applicant run water quality analysis for precautionary purposes.

13 WORK CITED

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14 APPENDICES

APPENDIX A

Hydrological Evaluation

Wister Solar Development Project

June 8, 2020

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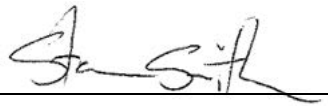
Prepared by 

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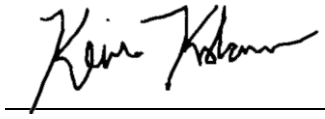
Reviewed & Approved by 

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Kevin Kohan

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Abbreviations

°F	Degrees Fahrenheit
AAC	All American Canal
AFY	Acre-feet per year
amsl	Above mean sea level
ANL	Argonne National Laboratory
bmsl	Below mean sea level
DWR	California Department of Water Resources
IIRWMP	Imperial Integrated Regional Water Management Plan
LLNL	Lawrence Livermore National Laboratory
POD	Point of Diversion
Project	Wister Solar Development Project
Proposed Well	Wister Solar Development Project Proposed Water Distribution Well
Stantec	Stantec Consulting Services
TDS	Total dissolved solids

1.0 INTRODUCTION

ORNI 21, LLC (Ormat) is proposing to construct and operate the Wister Solar Development Project (Project) near the unincorporated community of Wister in Imperial County, California (**Figure 1**). The Project is located on a privately owned land parcel within the northwest quarter or Township (T) 10 South (S), Range (R) 14 East (E) Section 27, San Bernardino Meridian. The Project consists of 100 acres of solar installation with a production capacity of 20 megawatt (net), associated infrastructure, and a water distribution well. Commercial operations are anticipated to begin in 2021.

The proposed water distribution well (Proposed Well) would supply water for Project construction, operation and maintenance, and decommissioning. Water requirements are summarized in **Table 1**. Water needs for operation and maintenance include panel washing, backup dust suppression, and fire tank water.

This report describes the hydrology and water related aspects of the Project area and surrounding area. This report includes details of physiography, geologic setting, climate, land use, surface water features, groundwater features, and a hydrologic conceptualization. The extent of this report is generally limited to a two-mile radius around the proposed water distribution well. Where data were limited within a two-mile radius of the Project, information from beyond this radius was included.

Table 1 Estimated Project Water Needs

Phase	Water Usage Rate	Duration	Total Water Requirement (acre-feet)
1: Dirt Work	40,909 gallons per workday	1 month	2.76
2: Construction	16,136 gallons per workday	2-7 months	6.54
3: Reclamation	13,636 gallons per workday	1 month	0.92
Construction Total	**-**	**9 months**	**10.22**
Operation & Maintenance Total	**1.37 acre-feet/year**	**25-30 years**	**34.25-41.10**
Decommission Total	**-**	**1 month**	**5.0**
Project Total		**~26-31 years**	**49.47-56.32**

Assuming 22 construction days per month; Pre-construction water needs assumed to be negligible.

2.0 SITE DESCRIPTION

2.1 PHYSIOGRAPHY

The Project is located in the Basin and Range physiographic province, which includes inland portions of California, the majority of Nevada, and portions or Arizona, New Mexico, Oregon, Utah, Idaho, and Mexico. The Basin and Range is divided into several sub basins, which includes the Salton Trough, which contains the Project. The Salton Trough includes the Imperial Valley in the south and the Coachella Valley in the north. The Project is near the northeastern margin of the Imperial Valley, approximately 5 miles east of the Salton Sea, a saline lake located in Imperial Valley. Imperial Valley is bounded by the Coyote and Jacumba Mountains to the west, the Chocolate and Orocopia Mountains to the northeast, the Sand Hills and Cargo Muchacho Mountains to the southeast, and the United States of America and Mexico border to the south. Furthermore, the elevated margins of Imperial Valley are named West Mesa and East Mesa. The elevation of the Imperial Valley is mostly below sea level and the Project is at approximately 15 feet bmsl. The Chocolate Mountains, which are the closest mountains to the Project, have a maximum elevation of 2,877 feet amsl.

2.2 GEOLOGIC SETTING

The Salton Trough is a tectonically active pull-apart basin. The extensional tectonics results in crustal thinning and sinking. Fault systems near the Project include the San Andreas Fault Zone and Imperial Fault Zone, which are linked by the Brawley Seismic Zone. The trough has filled with sediments due to its topographically low setting and continued sinking. The overall vertical relief of the trough formation is estimated to exceed 14,000 feet, which has been caused by faulting, folding, and warping (Loeltz et al., 1975). The geology and geomorphology of the Imperial Valley was influenced by prehistoric Lake Cahuilla, including lacustrine sediments and paleo-shorelines. The adjacent Chocolate Mountains include outcrops Tertiary and older igneous and metamorphic rocks. The piedmont slope of the Chocolate Mountains, located northeast of the Project, includes poorly sorted alluvial and fluvial deposits with sparse vegetation (Loeltz et al., 1975).

2.3 CLIMATE

The Project area has a hot desert climate. Climate data was available from two nearby weather stations: Niland (0.9 miles west-northwest of the Project; NCEI 2020a) and Brawley (22 miles south of the Project; NCEI 2020b). Both sites report climate normals (1981 to 2010) with Niland reporting precipitation and Brawley reporting precipitation and temperature. Monthly average temperatures are between 54.9 to 91.6°F with minimum temperatures occurring in December and maximum temperatures occurring in August. Average annual precipitation at Niland was 2.88 inches and at Brawley was 2.78 inches. The majority of precipitation occurs from December through March.

Precipitation in the adjacent Chocolate Mountains are estimated at 4–6 inches/year (PRISM, 2020).

Site Description

Table 2 Climate Normals near the Project

Period	Brawley[1)]		Niland[2)]
	Average Temperature (°F)	Precipitation (inches/year)	Precipitation (inches/year)
January	55.8	0.48	0.47
February	59.1	0.53	0.44
March	64.3	0.33	0.45
April	69.9	0.05	0.07
May	77.4	0.02	0.01
June	85.0	0.00[3)]	0.03
July	91.3	0.08	0.23
August	91.6	0.21	0.21
September	86.2	0.16	0.22
October	75.2	0.25	0.18
November	63.2	0.19	0.17
December	54.9	0.48	0.40
Annual	72.9	2.78	2.88

1) Brawley, CA US; GHCND: USC00041048; 32.9544°, -115.5581°; 100 ft bmsl; NCEI, 2020a

2) Niland, CA US; GHCND: USC00046197; 33.2775°, -115.5239°; 60 ft bmsl; NCEI, 2020b

3) non-zero value that rounds to zero

2.4 LAND AND WATER USE

Land use within 2 miles of the Proposed Well is available from the 2003 Land Use GAP dataset. A summary of land use is provided in **Table 3**. The land area in 2002 was 75.6% natural ecosystem, including Sonora Mojave, North American Warn Desert, and Inter-Mountain Basins Shale Badlands. Cultivated croplands, pasture/hay and developed areas accounted for 24% of the area and the remaining 0.5% was open water. Approximately 9.6% of land within this area is within the Chocolate Mountain Aerial Gunnery Range, which is under the jurisdiction of the United States Navy and United States Marine Corps. Comparing land use classification to recent aerial imagery indicates some in land use due to the expansion of agriculture and solar energy operations, with other land use changes possible. Cultivated croplands include areas under irrigation, likely derived from laterals from the East Highline Canal.

Site Description

Table 3 Land Use Within Two Miles of the Proposed Well

Ecosystem	Description	Percent of Area
Sonora Mojave	Creosote Bush White Bursage Desert Scrub	29.9%
	Mixed Salt Desert Scrub	13.3%
North American Warm Desert	Riparian Woodland and Shrubland	11.4%
	Wash	10.8%
	Bedrock Cliff and Outcrop	7.4%
	Pavement	1.0%
	Playa	0.4%
	Volcanic Rockland	0.1%
	Active and Stabilized Dune	0.0%*
Cultivated Cropland	-	13.5%
Pasture/Hay	-	8.5%
Developed	Low Intensity	1.5%
	Medium Intensity	0.0%*
	Open Space	0.5%
Inter-Mountain Basins Shale Badland	-	1.2%
Open Water	Fresh	0.5%

*non-zero value that rounds to zero

3.0 HYDROLOGICAL SYSTEM

The hydrologic system in the vicinity of the Project includes the East Salton Sea groundwater basin (**Figure 2** and further details in Section 3.3), which is influenced by the surface water system, which includes intermittent creeks and canal systems with associated distribution and storage systems (see Section 3.2). Surface water features and wells are shown in **Figure 3**.

3.1 PRECIPITATION AND EVAPOTRANSPIRATION

Precipitation near the Project is recorded at approximately 2.8 to 2.9 inches/year. Modeled precipitation is higher in the Chocolate Mountains at approximately 4 to 6 inches/year. Potential evapotranspiration (PET) is between 80 and 100 inches/year within 2 miles of the Proposed Well (Esri, 2015). In the Chocolate Mountains, PET is higher at 100 to 110 inches/year. High PET rates combined with low precipitation rates limits the potential for groundwater recharge. However, recharge is possible during high precipitation storm events when PET is low.

3.2 SURFACE WATER SYSTEM

Surface water features within 2 miles of the Proposed Well include natural drainages and manmade features including canals, laterals, drains and ponds/reservoirs (**Figure 3**). Natural drainages include Iris Wash and unnamed minor drainages, which convey runoff from the Chocolate Mountains to the Imperial Valley. These drainages ultimately flow towards the Salton Sea, which is the low point of the basin. All-natural drainages are classified as intermittent (USFWS, 2020). All natural drainages are classified as intermittent (USFWS, 2020).

Canals include the Coachella Canal and the East Highline Canal (**Figure 3**). Both canals deliver water from the All American Canal (AAC), located approximately 40 miles south of the Project. The Coachella Canal is located approximately 1.3 miles from the Proposed Well. The Coachella Canal was initially unlined in the Imperial Valley, which lead to water losses into the alluvial sediments. In the late 1970s, the first 49 miles of the Coachella Canal was replaced with a concrete lined channel. This end of this segment is located approximately 3.6 miles east southeast of the Proposed Well. In the mid-2000s, the remaining 36.5 miles of the Coachella Canal (including the section near the Project; see **Figure 3**) was replaced with a concrete lined channel, reducing seepage losses into alluvial sediments.

The East Highline Canal is located approximately 0.5 miles from the Proposed Well. Furthermore, the East Highline Canal crosses the southwest corner of the Project (**Figure 1**). The East Highline Canal is unlined and likely results in seepage to alluvial sediments. The water distribution system in the Imperial Valley, near the Project, include laterals and ponds for distribution and storage, respectively, and drains to convey unused water from distribution system, farmland, and discharging groundwater to the Salton Sea (IIRWMP, 2012). The East Highline Canal is downgradient from the Project though a seepage mound in the shallow aquifer may be present upgradient of the canal, as identified along unlined sections of the AAC and Coachella Canal (Loeltz et al., 1975).

3.3 GROUNDWATER SYSTEM

The Project is located in the East Salton Sea Basin (basin 7-033) (**Figure 2**). The basin occupies the northeastern margin of the Imperial Valley, including the East Mesa, and alluvial surficial deposits of the Chocolate Mountains. The basin covers 279,824 acres. Adjacent basins include Chocolate Valley to the north, Arroyo Seco Valley to the east, Amos Valley to the southeast, and Imperial Valley to the south. No groundwater basin is defined in the footprint of the Salton Sea.

3.3.1 Aquifer Extent and Properties

Aquifers in the East Salton Sea Basin include alluvial aquifers, which are present as valley fill with maximum thicknesses of at least 400 feet (Willets et al., 1954). Water bearing units include unconsolidated Quaternary alluvium and semi-consolidated Tertiary to Quaternary alluvium. The groundwater storage capacity was estimated at 360,000 acre-feet (DWR, 1975). High permeability units likely include coarse sands and gravels, where present. Aquifer extents are bounded by outcropping bedrock in the Chocolate Mountains and possibly low-permeability fault zones such as the San Andreas Fault Zone, the Banning Mission Fault, and other unnamed faults.

Specific to East Mesa, aquifers in this area are generally unconfined, homogenous, and composed of sediments deposited by the Colorado River (IIWMP, 2012).

A geothermal test well was previously drilled at the Project by Ormat (well 12-27) to a depth of 3401 feet bgs. The shallow groundwater system was not specifically characterized during drilling and testing. However, static temperature logs from the well may indicate the presence of an aquifer zone as shallow as 40 to 50 feet bgs. Other aquifer zones are likely present but were not identified due to the limitations of temperature logs. Geothermal properties of the test well were non-economical, and the well was abandoned.

The nearest East Mesa well with a lithological log is 12S/16E-9A, which is located 9 miles to the southwest of the Proposed Well (**Figure 3**). Lithological details are provided in **Table 4**. In the 1000-foot log, 61% of the thickness is dominated by sand, 34% dominated by clay and approximately 1% dominated by sandstone. Sand and clay intervals also include silts and gravels. Coarse sands and gravels, likely having high hydraulic conductivities, are intermittently present throughout the logged sequence. The perforated interval of the well was placed at 150-1,000 feet and the static water level was recorded at 154.5 feet bgs, which is an elevation of 65.5 feet bgs. Other nearby wells with lithological logs were completed in the Imperial Valley and contain higher percentages of clay (Loeltz et al., 1975).

Table 4 Lithological Log of 12S/16E-9A (9 Miles Southwest of the Proposed Well)

Lithology	Thickness (feet)	Depth Interval (feet)
Sand, silty, very fine, and brown clay	10	0-10
Sand, very coarse to fine, and very fine gravel	102	10-112
Clay, light-brown, and very fine silty sand	5	112-117
Sand, fine to medium, and silt	14	117-131
Clay, silty, yellow-brown	5	131-136
Sand, coarse to very coarse	15	136-151
Sand, very coarse to coarse, and very fine and larger gravel	45	151-196
Sand, fine to very coarse, and yellow-brown clay	19	196-215
Clay, yellow-brown, and fine sand	17	215-232
Sand, very fine to very coarse, and thin layers of gravel	48	232-280
Clay, yellow-brown; some light-gray clay	20	280-300
Clay, light-gray, and yellow-brown clay	40	300-340
Sand, medium to very coarse, and gravel	3	340-343
Clay, light-gray	13	343-356
Sand, fine to medium, and light-gray clay	15	356-371
Clay, silty, light-gray	13	371-384
Sand, very fine to medium, and thin layers of gray clay	33	384-417
Sand, fine to very coarse, and very fine to fine gravel	10	417-427
Sand, very fine to medium, and thin layers of gray clay	59	427-486
Clay, light-gray, and fine sand	6	486-492
Sand, silty, very fine to medium	24	492-516
Clay, light-gray	31	516-547
Sand, very fine to medium	15	547-562
Sand, very fine to medium, and light-gray clay	18	562-580
Clay, light-gray and yellow-brown	60	580-640
Sand, fine to very coarse, and light-gray clay	42	640-682
Clay, light-gray, and layers of fine to very coarse sand	30	682-712
Sandstone, very fine to medium, and fine to coarse sand	53	712-765
Clay, light-gray, and very fine to medium sandstone	17	765-782
Clay, light-gray; some yellow brown	38	782-820
Clay, gray and brown, and fine to very coarse sand	46	820-866
Sand, silty, fine to medium	61	866-927
Sand, silty, fine, and light-gray clay, in alternating layers	73	927-1,000

Source: Loeltz et al., 1975

3.3.2 Well Inventory

Only one well was identified within two miles of the Proposed Well. The well is located at 10S/14E-20N, approximately 2.0 miles west of the Proposed Well (**Figure 3**). Few details are available for this well and there are no records of construction details. However, water quality samples were collected in 1961 (see Section 3.3.8).

3.3.3 Recharge

Groundwater recharge in the East Mesa area was historically dominated by seepage from the Coachella Canal, prior to replacement with concrete lined channels in the late 1970s and mid-2000s. Prior to lining, seepage from the 36.5 mile section near the Project has been estimated at 26,000 acre-feet per year. Unlined sections of the AAC continue to recharge the East Mesa groundwater aquifer. However, the unlined section is approximately 45 miles from the Project. In the absence of canal seepage, recharge to the East Mesa aquifer from direct precipitation is estimated to be near zero (Leroy Crandall and Associates, 1983).

Groundwater recharge in the Chocolate Mountains may include mountain front recharge and stream flow runoff (Tompson et al., 2008). The Lawrence Livermore National Laboratory (LLNL) groundwater model (Tompson et al., 2008) estimated that recharge from precipitation within the Imperial Valley and portions of surrounding ranges was 0.019 inches/year, which is less than 1% of precipitation. Furthermore, the LLNL model did not include additional recharge along the mountain fronts. The 2013 groundwater model, which was updated by Argonne National Laboratory (ANL; Greer et al., 2013) estimated recharge at 0.056 inches/year in Imperial Valley and 7.2 inches/year along the mountain-front area of the Chocolate Mountain. This estimate of mountain-front recharge may not be supported by the estimated precipitation rates for the Chocolate Mountains (4-6 inches/year; PRISM, 2020).

In 2003, the DWR classified the East Salton Sea Basin groundwater budget type as ‘C’, which indicates that groundwater data is insufficient to estimate the groundwater budget or groundwater extraction (DWR, 2003).

3.3.4 Discharge and Extraction

Discharge from the East Salton Sea Basin includes springs, discharge into irrigation drains, and extractions from wells. Spring discharge, and water losses from associated vegetation, is likely limited based on the occurrence of few springs (see **Figure 3**). Irrigation drains in the Imperial Valley (including the western margin of the East Salton Sea Basin) primarily return excess irrigation water to the Salton but also function to remove discharging groundwater. Water well extraction rates were last estimated in 1952 at 6 acre-feet/year (DWR, 1975). Due to the lack of development in this basin, current extraction rates may be similar. However, this statement is speculative due to a lack of recent information (DWR, 2003).

3.3.5 Seeps and Springs

No identified springs or seepage are present within two miles of the Proposed Well. The closest identified spring is an unnamed spring located approximately 6.5 miles southeast of the Proposed Well (**Figure 3**) (USGS, 2020).

3.3.6 Underflow

Underflow seepage likely conveys water from the East Salton Sea Basin, downgradient into the Imperial Valley. The quantity of water flow between basins would require details of hydraulic gradients and transmissivities of adjoining aquifers and the impact of transmissive or impeding zones such as faults. Groundwater flow between other surrounding basins in unknown as hydraulic head and hydraulic gradient information is sparse.

3.3.7 Groundwater Levels

Groundwater levels in the vicinity of the Project have been influenced by the presence of the canal systems, including the Coachella Canal, East Highline Canal, and associated laterals and drains. Seepage from the unlined Coachella Canal created a groundwater mound in the shallow alluvial aquifer of East Mesa, with water levels rising over 70 feet in some areas (Loeltz et al., 1975).

Groundwater level decline in the vicinity of the Coachella Canal has been monitored since the late 1970s when the first 49 miles of the earthen canal channel was replaced with a concrete channel. United States Geological Survey (USGS) well 11S/15E-23M, which is approximately 9 miles southeast of the Proposed Well (**Figure 3**), shows an asymptomatic groundwater level decline from 20.68 feet bgs in 1979 to approximately 50 feet bgs at present. The water level elevations as of March 2020 were approximately 70 feet amsl. No groundwater levels have been reported along the Coachella Canal section that was lined in the late 2000s. However, a similar asymptotic decline could be expected.

Groundwater levels in Imperial Valley have been historically measured at two multi-level wells located approximately 6.5 to 7.5 miles southwest of the Proposed Well (11S14E30C and 11S14E19N; **Figure 3**). Water levels at these locations were within 10 feet of the ground surface in 1989. The groundwater elevation at that time was approximately 215 feet bmsl. Groundwater levels in the irrigated areas have been controlled by the drain systems (IIRWMP, 2012).

Current groundwater levels, although sparse, generally agree with historical groundwater elevation distributions. Groundwater elevations are higher in mountainous areas and East Mesa and decline towards Imperial Valley and the Salton Sea. This distribution of groundwater elevations suggests groundwater flow directions roughly coincide with topography. However, the flow of groundwater and distribution of groundwater levels is likely influenced by faults, which act as barriers, and changes in transmissivity.

3.3.8 Groundwater Quality

Groundwater quality in the East Salton Sea Basin is generally reported as poor and not suitable for domestic, municipal, or agricultural purposes (DWR, 2004). Water types include sodium chloride and sodium sulfate. Total dissolved solids (TDS) concentrations are reported as 356 to 51,632 mg/L, whereas the National Secondary Drinking Water Regulations limit TDS to 500 mg/L. Groundwater quality is generally considered better in the vicinity of the unlined canals due to the recharge of lower TDS water.

The closest well to the Proposed Well with available water quality data is located 2 miles to the west (Loeltz et al., 1975). A limited number of water quality constituents were measured in 1961, including pH (8.0),

specific conductivity (19,200 µS/cm), bicarbonate (210 mg/L), chloride (6,050 mg/L), calcium-magnesium hardness (2,440 mg/L), and non-carbonate hardness 2,270 mg/L). The screened interval depth of this well is unknown.

The next closest well to the Proposed Well with available water quality data is an inactive USGS monitoring well (11S/14E-2A) located approximately 2.8 miles to the southeast (USGS, 2020). The well is located in a Basin and Range basin-fill aquifer. The total depth was 825 feet bgs, however, the depth of the screened interval is unknown. Water quality was measured in the late 1960s and early 1970s. The latest water quality sample that includes all major ions (calcium, magnesium, sodium, potassium, bicarbonate, sulfate and chloride) was collected in 1969. This sample had sodium-chloride type water and a TDS concentration of 1,760 mg/L. Furthermore, temperatures were elevated above ambient temperatures at 44.4°C.

3.3.9 Transmissivity and Well Yield

Well yield information for the East Salton Sea Basin is limited. The only identified value is 25 gpm at well 11S/15E-23M, located approximately 9 miles southeast of the Proposed Well (**Figure 3**) (Loeltz et al., 1975). Hydraulic properties in East Mesa were summarized in the mid-1990s (Montgomery Watson, 1995). The range of hydraulic conductivities was 32 to 1,337 feet/day, which included wells several miles southeast of the Project.

3.4 WATER RIGHTS AND POINTS OF DIVERSION

No points of diversion (POD) are identified within two miles of the Proposed Well, (California Water Boards, 2020). However, this two-mile radius includes seven laterals from the East Highline Canal, which may have associated water rights and points of diversion. The closest identified POD is 5.7 miles southwest of the Proposed Well (California Water Boards, 2020). This POD is owned by the Metropolitan Water District of Southern California and is located along the N Lateral, which originates from the East Highline Canal. More distal PODs are associated with laterals and the Alamo River.

4.0 HYDROLOGIC EVALUATION SUMMARY

The Wister Solar Development Project is located within the East Salton Sea Basin, which includes the Chocolate Mountains and the northeastern margin of the Imperial Valley (**Figure 2**). The groundwater storage capacity of the East Salton Sea Basin was estimated at 360,000 acre-feet. Groundwater usage in the East Salton Sea Basin is limited due to generally poor water quality and limited inhabitants. Extraction rates for the East Salton Sea Basin were last estimated in 1952 at 6 acre-feet/year, which is 3% of the estimated recharge rate of 200 acre-feet/year (DWR, 1975). Limited development in the East Salton Sea Basin suggests that current extraction rates are similar. However, a lack of recent data limits the ability update this estimate. Furthermore, surface water from the Colorado River is conveyed into the Imperial Valley through a network of canals, laterals, and reservoirs, which has further reduced the need to develop groundwater resources.

Groundwater in the East Salton Sea Basin is present in alluvial aquifers at depths up to several hundred feet, and with generally high transmissivities (Montgomery Watson, 1995). At the Project, groundwater may also be present in an alluvial aquifer 40-50 feet bgs. Historically, groundwater recharge was significant in the vicinity of the earthen lined Coachella Canal. The replacement of the canal with a concrete lined channel has greatly reduced recharge to the adjacent alluvial aquifers. Near the Project, the Coachella Canal was concrete lined in the late 2000s. The East Highline Canal remains earthen-lined, which likely leads to recharge into the shallow alluvial aquifers near the Project. Recharge from precipitation is generally limited due to low precipitation rates and high evaporation potential. Recharge rates may be higher in the Chocolate Mountains due to higher precipitation rates at higher elevations (4-6 inches/year; PRISM, 2020). Recharge events are likely limited to larger storm events, which may generate runoff and seepage along ephemeral channels. Recharge rates from precipitation were estimated at 0.019 inches/year (Tompson et al., 2008).

The water needs for the Project are estimated at 10.22 acre-feet for construction in the first year, 1.37 acre-feet/year for the subsequent 25 to 30 years of operation, and 5 acre-feet for decommissioning at the end of operations (**Table 1**). Overall, the proposed extraction for the Project are significantly lower than recharge rates in an area where groundwater usage is limited.

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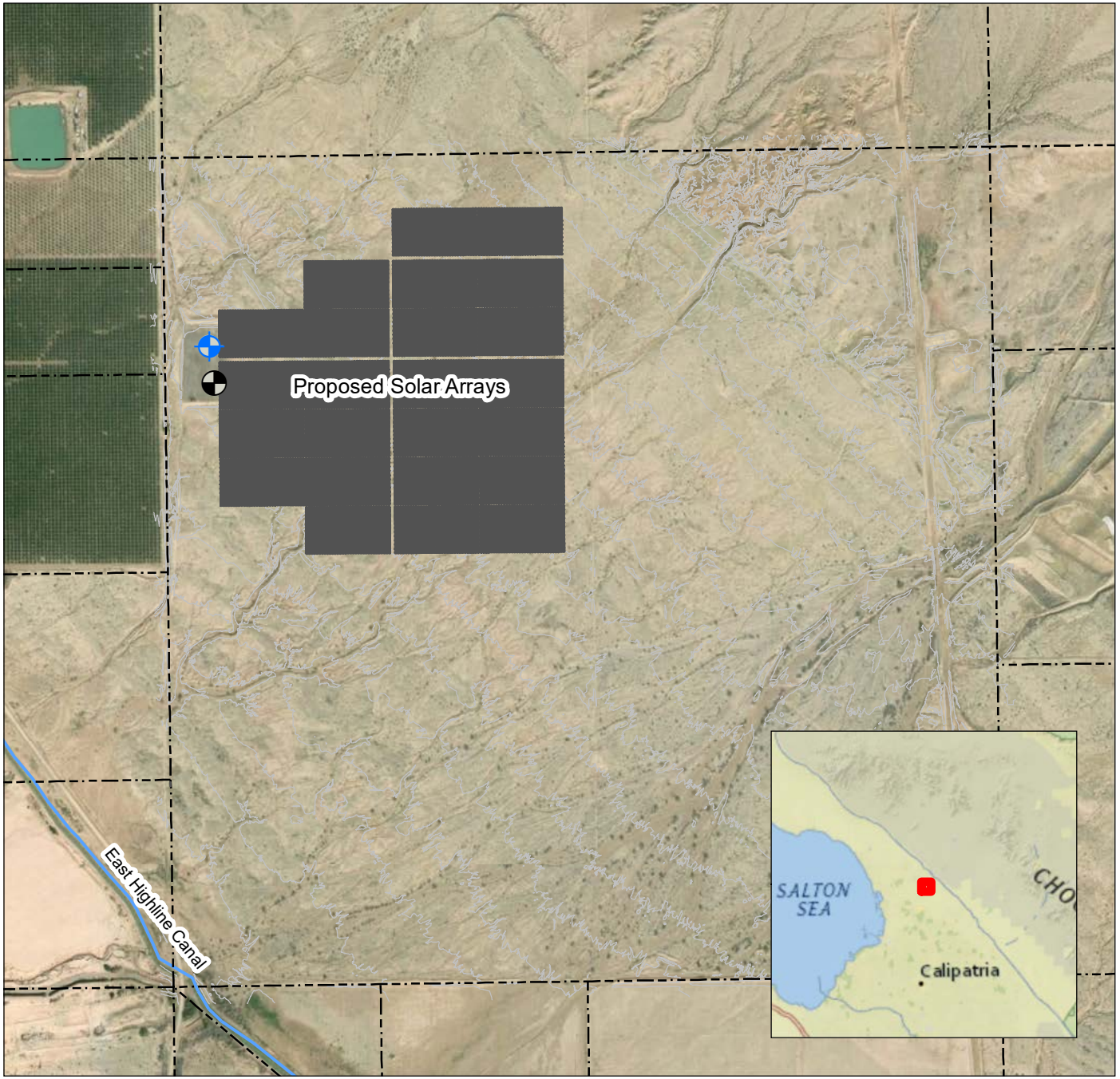
FIGURES



Stantec

Legend

- Proposed Water Distrubution Well
- Geothermal Test Well 12-27
- Property Line
- Contour-major
- Project Location

N

0 150 300 metres

(At original document size of 8.5x11)
1:11,713

Notes

1. Coordinate System: NAD 1983 UTM Zone 11N
2. Data Sources:
3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,

Project Location
T10S, R14E, S27
Imperial County, CA

Prepared by LR on 2020-05-29
TR by SS on 2020-05-29
IR Review by KK on 2020-05-29

Client/Project
ORNI 21, LLC
Wister Solar Development Project
Hydrologic Evaluation

185804209 REVA

Figure No.
1

Title
Project Location and Overview

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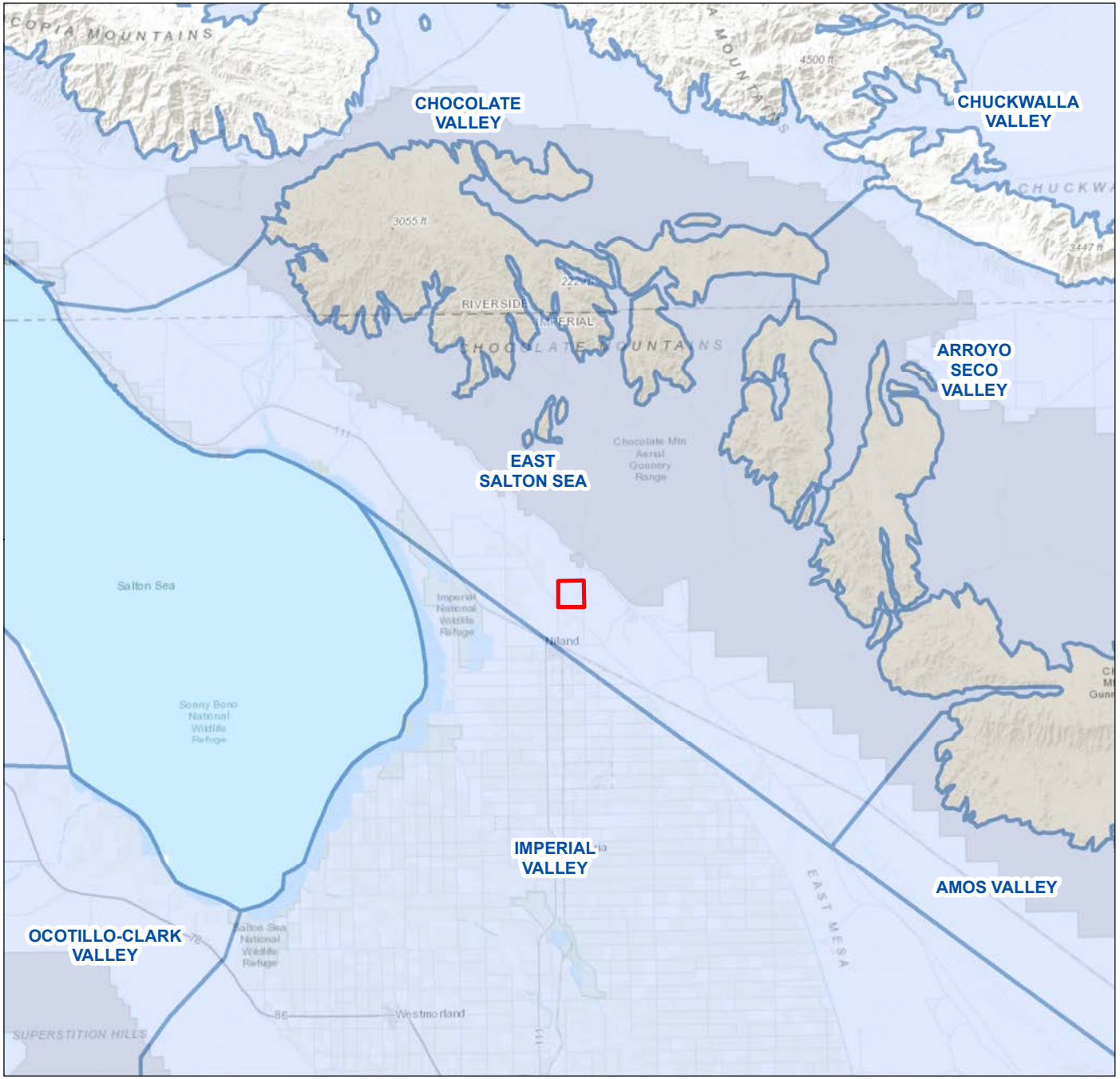
PC ORIGINAL PKG



Stantec

Legend

- Project Location
- Groundwater Basin

N

0 4,700 9,400 metres

(At original document size of 8.5x11)
1:372,507

Notes

1. Coordinate System: NAD 1983 UTM Zone 11N
2. Data Sources:
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

Project Location
T10S, R14E, S27
Imperial County, CA

Prepared by LR on 2020-05-29
TR by SS on 2020-05-29
IR Review by KK on 2020-05-29

Client/Project
ORNI 21, LLC
Wister Solar Development Project
Hydrologic Evaluation

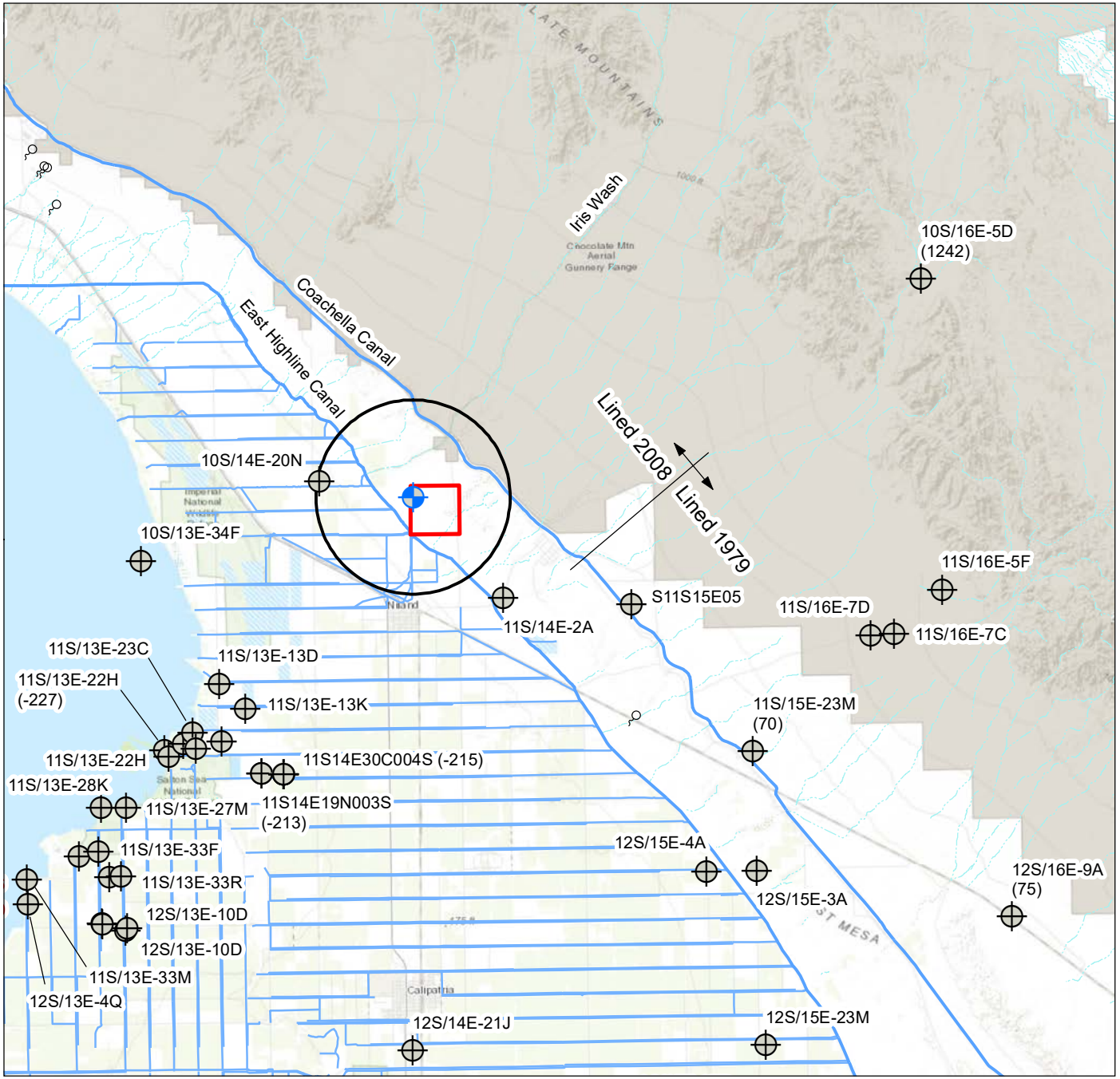
185804209 REVA

Figure No.
2

Title
Groundwater Basins

\\US1342-F01\workgroup\1858\active\185804156103_data\GIS\mxd\Fig2_GW_Basins_8x11L.mxd Revised: 2020-06-08 By: stasmith

PC ORIGINAL PKG



Stantec

Legend

- Proposed Water Distribution Well
- Existing or Historical Well (Water Level Elevation ft amsl)
- Spring
- Canal
- Lateral
- Intermittent Creek
- Proposed Well 2-Mile Buffer
- Project Location

N

0 2,500 5,000 metres

(At original document size of 8.5x11) 1:200,000

Notes

1. Coordinate System: NAD 1983 UTM Zone 11N

2. Data Sources:

3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

Project Location
T10S, R14E, S27
Imperial County, CA

Prepared by LR on 2020-05-29
TR by SS on 2020-05-29
IR Review by KK on 2020-05-29

Client/Project
ORNI 21, LLC
Wister Solar Development Project
Hydrologic Evaluation

185804209 REVA

Figure No.
3

Title
Well and Water Resources Inventory

\\US1342-F01\workgroup\1858\active\185804156103_data\GIS\mxd\Fig3_Water_Resources_8x11L_20200601.mxd Revised: 2020-06-08 By: stasmith

PC ORIGINAL PKG

APPENDIX B

TITLE 9

DIVISION 21: WATER WELL REGULATIONS

CHAPTER 1: GENERAL

§ 92101.00 PURPOSE

Imperial County is an arid region located in the Southeastern portion of the State of California and the preservation and protection of the County's ground water resources are extremely critical. The Board of Supervisors hereby finds and declares that the preservation, protection and management of the groundwater within the County for the protection of domestic, commercial, agricultural, industrial, municipal, wildlife habitat, and other uses is in the public interest, that protection is necessary to ensure availability of groundwater reasonably required to meet the present and future beneficial needs of the County, and that the adoption of a system of regulation of groundwater is for the common benefit of all County water users. The Board of Supervisors has, therefore, determined to regulate the use, consumption and development of ground water on a County-wide basis. Further, it is the intent of the Board of Supervisors to protect the health, safety, and general welfare of the people of Imperial County by insuring that the ground water of this County will not be polluted or contaminated. To this end, minimum requirements have been prescribed in this Ordinance for the construction, re-construction, repair, replacement, re-perforation, re-activation, operation, and destruction of a well or wells.

§ 92101.01 DEFINITIONS

A. Cathodic Protection Well: Any artificial excavation constructed by any method for the purpose of installing equipment or facilities for the electrical protection of metallic equipment in contact with the ground.

B. Commercial Well (Small): A water well used to supply a single commercial establishment, consuming less than 10 acre feet per year ("AF/Y") of ground water.

C. Commercial Well (Large): A water well used to supply more than one (1) commercial establishment, or utilizing more than 10 AF/Y.

D. Community Water Supply Well: A water well used to supply water for domestic, commercial industrial purposes in systems subject to Chapter 7 of Part I of Division 5 of the California Health and Safety Code (Section 4010 et. seq.), i.e. more than five (5) service connections.

E. Construct, Reconstruct, (Construction, Reconstruction): To dig, drive, bore, drill, or deepen a well, or to re-perforate, remove, replace, or extend a well casing.

F. Contamination: An impairment of the quality of water to a degree that creates a hazard to the public health through poisoning or spread of disease.

G. Deep Anode Bed Well: Any cathodic protection well more than 50 feet.

H. Destruction: A proper filling and sealing of a well no longer useful so as to assure that ground water is protected and to eliminate a potential physical hazard.

I. Electrical Grounding Well: Any artificial excavation in excess of 20 feet constructed by any method for the purpose of establishing an electrical ground.

J. Enforcement Agency: An agency designated by the Board of Supervisors to administer and enforce this Ordinance. For the purpose of this Division it shall be the Planning & Development Services Department.

K. Individual Domestic Well: A water well used to supply water for domestic needs of an individual residential, utilizing less than the (10) AF/Y.

L. Modification, Repair, or Reconstruction: The deepening of a well, the re-perforation, or replacement of a well casing and all well repairs and modifications that can affect ground water quality.

M. Observation Well: A well used for monitoring or sampling the conditions of a water-bearing aquifer, such as water pressure, depth, movement or quality.

N. Permit: A Building Permit issued by the County of Imperial Planning & Development Services Department, permitting the construction, reconstruction, destruction, or abandonment of a well.

O. Person: Any person, firm, corporation, or governmental agency, to the extent authorized by law.

P. Planning Director: The Planning Director of Imperial County or his designee.

Q. Pollution: An alteration of the quality of water to a degree which unreasonably affects: (1) such waters for beneficial uses; or (2) facilities which serve such beneficial uses. Pollution may contain contamination.

R. Potable: Water generally intended for human consumption and/or meeting safe drinking water standards by State or Federal regulations.

S. Public Nuisance: The term "Public Nuisance", when applied to a well, shall mean any well which threatens to impair the quality of ground water or otherwise jeopardize the health and safety of the public.

T. Shallow Anode Bed Well: Any cathodic protection well more than 20 feet deep, but less than 50 feet deep.

U. Test or Exploratory Well: An excavation used for determining the nature of underground geological or hydrological conditions, whether by seismic safety, direct observation or any other means.

V. Well: An artificial excavation constructed by any method for the purpose of extracting water from or injecting water underground, or providing cathodic protection or electrical grounding of equipment, for making tests for observation of underground conditions, or for any other similar purposes. Wells shall include, but shall not be limited to, community water supply wells, individual domestic water wells, commercial wells, industrial wells, cathodic protection wells, electrical grounding wells, test or exploratory holes, observation wells and other wells whose regulation is necessary to accomplish purposes of this Chapter.

Wells shall not include: (1) oil and gas wells, geothermal wells, or other wells that are constructed under the jurisdiction of the State Department of Conservation, except oil wells converted to use as water wells; or (b) wells used for the purpose of de-watering excavations during construction, or stabilizing earth embankments.

CHAPTER 2: PERMITS

§ 92102.00 PERMIT(S) REQUIRED

A. Conditional Use Permit:

No person shall (1) drill a new well, (2) activate a previously drilled but unused well, (unused shall mean a well or wells that have not been used for a 12 month) period by installing pumps, motors, pressure tanks, piping, or other equipment necessary or intended to make the well operational, (3) increase the pumping capacity of a well, or (4) change the use of a well, without first obtaining a Conditional Use Permit (CUP) through the County Planning & Development Services Department.

The pumping capacity shall mean the “permitted amount” or in the absence of a permit the annual acreage, over 3 year period.

Notwithstanding the above, a CUP is not required prior to drilling the following types of wells.

1. A test/monitoring/research well where no continued water use will result. Upon completion of the tests, the well shall be sealed/abandoned in compliance with the most current edition of State Water Resources Control Board Bulletin #74-81;

2. Any new well which will replace an existing inoperable well, provided that the inoperable well is serving an existing water user and is already properly permitted through the CUP process and provided the replacement well shall be the same or smaller size, diameter, and capacity as measured by gallons per minute ("GMP") as the inoperable well. In an emergency and even if the inoperable well was not permitted, the Director may approve replacing a well provided that the replacement well meets the requirements for the last approved CUP and does not exceed 1 acre feet per year.

3. A well that is drilled by or for the Department of Fish and Game provided however that they shall register each such well with the Planning & Development Services Department.

B. Well Construction Permit. No person shall dig, bore, drill, deepen, enlarge, refurbish, or destroy a water well, cathodic protection well, observation well, monitoring wells or any other excavation that intersects ground water without first obtaining a well construction permit through the Planning & Development Services Department. As a prerequisite to applying for a water well construction permit, the Planning & Development Services Department shall first determine whether a conditional use permit is required.

§ 92102.01 APPLICATION PROCEDURES

A. Project information: The application for both a CUP and/or a Construction Permit shall be made to the Planning & Development Services Department on the forms approved or provided by the Department and shall, at a minimum, contain the following information:

1. Site Plan drawn to scale.

    a. Location of well on property.
    b. Size of property (all dimensions).
    c. Distance from well to all property lines.
    d. Distance from well to all septic/leach fields.
    e. Distance from well to all structures.
    f. All intermittent or perennial natural or artificial bodies of water or water sources.
    g. The approximate drainage pattern of the property.
    h. Other wells.
    i. Structures--surface or subsurface.

2. Location of property, Assessor's Parcel Number.
3. Name of person who will construct the well.
4. The proposed minimum and proposed maximum depth of well.
5. The proposed minimum depth and type of casings and maximum depths of perforation to be used.

    a. Pump type
    b. Size (Diameter/horsepower)
    c. gpm capacity
    d. Water pressure

6. The proposed use of well.
7. Other information as may as necessary to determine if ground water will be adequately protected.

B. Filing Fee(s): A filing fee shall be paid by the applicant. Said fee shall be as set forth in the Codified Ordinances of the County of Imperial. No filing or permit fee shall be required to abandon or destroy a well.

C. Emergency Work: In an emergency in order to maintain drinking water or agricultural supply systems as determined by the Planning Director, the following procedures shall apply:

1. Permittee shall notify the Planning & Development Services Department that an emergency exists that necessitates the immediate repair or replacement of a well or associated water system. Permittee shall provide all pertinent information as to why it is an emergency.

2. Permittee shall within 72 hours apply for and obtain all required permits.

3. Permittee will demonstrate by providing logs or other reports that all work performed was in conformance with all regulations and standards as designated herein, and will further report or correct any part of the system that does not comply with this Ordinance, other applicable laws or codes.

§ 92102.02 PERMIT CONDITIONS

A. Limitation: When the enforcement agency issues or otherwise approves a conditional use permit or well construction permit, pursuant to this ordinance, it may condition the permit in any manner necessary to carry out the purposes of this Ordinance.

B. CEQA Review: The processing of a Conditional Use Permit and/or a well construction permit shall be in compliance with the California Environmental Quality Act (CEQA) and Imperial County's Rules and Regulations to Implement CEQA, as amended.

C. Performance Bond: The enforcement agency may require such bond or other security as determined necessary to assure compliance with this Ordinance.

D. License Required: All construction, reconstruction or destruction work on wells shall be by a person/firm who possesses an active California Contractor's license in accordance with Business and Professions Code, Section 7000 et. seq.

E. Disposal of Drilling Fluids/Materials: The well driller shall be required to provide for the safe and appropriate handling and disposal of all drilling fluids or other drilling materials associated with the permitted project.

F. Abandoned Wells: As a condition to any approval for a permit for the construction or reconstruction of a well, any abandoned well(s) on the property shall be destroyed in accordance with the standards provided in this Ordinance.

G. Posting of Permit: It shall be the responsibility of the well driller to maintain a copy of the approved permit on the drilling site during all stages of construction or destruction of a well and have then available for general inspection.

H. Provide Copies: It shall be the responsibility of the well driller to maintain and provide copies to the Planning & Development Services Department, Public Works Department and Environmental Health Department of all drilling logs, testing reports and/or abandonment logs.

§ 92102.03 PERMIT DENIAL

The enforcement agency shall deny any application for a permit if, in its judgment, issuance of a permit is not in the public interest, violates health and safety concerns, or in compliance with the intent of this Ordinance.

§ 92102.04 EXPIRATION OF PERMIT

The permittee shall commence work authorized by the permit within 180 days from the effective date of issue and shall complete the work within one (1) year from date issued. The enforcement agency may grant a one-time extension for a period of up to one year if requested in writing by applicant at least 60 days prior to the expiration of the permit.

All permits that have not received a final inspection approval from the enforcement agency within one year from date of issue shall expire unless an extension is granted by the Planning & Development Services Department. If a permit has expired, no further work shall be done until a new permit is requested, approved, and issued to applicant.

§ 92102.05 SUSPENSION AND REVOCATION

A. Circumstances for such action: Enforcement agency may suspend or revoke any permit issued pursuant to this Ordinance, whenever it finds that the permittee has violated any of the provisions of this Ordinance, or has misrepresented any material fact in his/her application or any supporting documents for such a permit. Prior to ordering any such suspension or revocation, the enforcement agency shall give permittee an opportunity for a hearing thereon, after reasonable notice. The hearing shall be before the enforcement agency, the director, or his designated representative.

B. Consequences: No person whose permit has been suspended or revoke shall continue to perform the work for which the permit was granted until, in case of suspension, such permit has been reinstated by the enforcement agency.

C. Additional Work: Upon suspending or revoking any permit, the enforcement agency may order permittee to perform any work reasonably necessary to protect the ground water from pollution or contamination, if any work already done by permittee has left a well in such a condition as to constitute a hazard to the quality of the ground water. No permittee or person who has obtained a permit issued pursuant to this Ordinance shall fail to comply with such order.

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CHAPTER 3: WELLS

§ 92103.00 REGISTRATION OF WELL

Any person who uses a new or existing well shall first register said well with the Imperial County Planning & Development Services Department. If a well is under an active conditional use permit, the well shall be deemed to be registered. Any well that is not under an Imperial County CUP shall be registered with the Planning & Development Services Department and the State pursuant to California Water Code, Section 13750..

An application to register any well shall be filed with the Planning & Development Services Department and said application shall contain all information required upon said form.

§ 92103.01 REPORTS

Completion Reports: The driller shall provide the enforcement agency a completion report within 30 days of the completion of any well construction, reconstruction, or destruction job.

A. Submittal of State "Report of Completion": A copy of the "Report of Completion" (Driller's well log) required by California Water Code, Section 13751, shall be submitted by the well driller to the enforcement agency within 30 days of construction or destruction of any well (except driven wells). This report shall document that the work was completed in accordance with all applicable standards and additional permit conditions.

This section shall not be deemed to release any person from the requirement to file said report with the State Department of Water Resources.

B. Confidentiality of Report: With the exception of the well driller's name, the date the well was drilled and the well yield, all information contained in this report shall remain "Confidential".

C. Other Agency's Requirements: Nothing in this Ordinance shall be deemed to excuse any person from compliance with the provisions of California Water Code, Section 13752, relating to notices and reports of completion or any other federal, state, or local reporting regulations.

§ 92103.02 WELL STANDARDS

Except as otherwise specified, the standards for the construction, repair, reconstruction, alteration, reactivation, operation, or abandonment of wells shall be as set forth in:

A. The California Department of Water Resources Bulletin 74-81 entitled, "Water Well Standards, State of California", except as modified by subsequent supplements or revisions issued by the Department of Water Resources.

B. The California Department of Water Resources Bulletin 74-90 and any subsequent supplements or revisions issued by the Department of Water Resources.

C. The following factors, to the extent necessary to avoid conditions of overdraft, subsidence, well interference, water quality degradation, or other environmental degradation:

1. The type of use or uses served.

2. The number of users served.

3. Wasteful or inefficient use.

4. Water conservation activities.

5. Reasonable need of the extractor and other affected water users.

6. The quality of groundwater.

7. The affected groundwater basin or sub-basins.

8. Environmental impact as determined through the CEQA review.

9. Any other factors that the Planning & Development Services Department reasonably believes it should consider in order to reach an equitable result within the entire County in accordance with the provisions of this Ordinance, and of California Law.

§ 92103.03 VARIANCES

The enforcement agency shall have the power under the following specified conditions to grant a variance from any provision of the standards referred to above and to prescribe alternate requirements in their place. There is no appeal from a denial of a variance request, unless:

A. Special Circumstances: There must be, in a specific case, special circumstances where practical difficulties or unnecessary hardship would result from the strict interpretation enforcement of any standard. Economic expense will not be considered "unnecessary hardship".

B. Intent of Ordinance not Compromised: The granting of any variance is to be consistent with the purpose and intent of this Ordinance and State Law.

§ 92103.04 SPECIAL GROUND WATER PROTECTION

The enforcement agency may designate areas where potable ground water quality is known to exist and where a well will penetrate more than one aquifer. The enforcement agency may require in these designated areas special well seals to prevent mixing of water from several aquifers. Where an applicant proposes well construction, reconstruction, alteration, repair or construction work, in such an area, the enforcement agency may require the applicant to provide a report prepared by a registered geologist or a registered civil engineer that identifies all strata containing poor quality water and recommends the location and specification of seal or seals needed to prevent entrance of poor quality water or its mitigation into other aquifers.

The enforcement agency may take such other action as it determines reasonably necessary to protect the degradation of both quantity and quality of any known aquifer resulting from the installation, modification, refurbishing, construction, repair or destruction of well or from improper well operations, maintenance, and/or from excessive pumping capacity.

§ 92103.05 APPEALS

A. Any person whose application for a permit has been denied, granted conditionally, or whose permit has been suspended or revoked, may appeal said determination to the Imperial County Planning Commission, provided the appeal is in writing, within ten (10) days after any such denials, conditional granting, suspension, or revocation. Such appeal shall specify the grounds upon which it is being requested and shall be accompanied by a filing fee as set forth in the County's Codified Ordinances. The Planning Director shall set such an appeal for hearing before the Planning Commission at the earliest practicable time, and shall notify the appellant and all interested parties in writing at least ten (10) days prior to the hearing.

B. After such hearing the Planning Commission may uphold, or may reverse, wholly or in part, or may modify any such determination.

C. The decision of the Planning Commission shall be final unless it is appealed to the Board of Supervisors within ten (10) days from the date of the Planning Commission's decision.

D. Any decision made by the Board of Supervisors on an appeal from the Planning Commission shall be final.

§ 92103.06 RIGHT OF ENTRY AND INSPECTION

Representatives of the enforcement agency shall have the right to enter upon any premises at all reasonable times to make inspections and tests for the purpose of such enforcement and administration. If any such premises are occupied, the representative shall first present proper credentials and demand entry. If the same is unoccupied, the representative shall first make a reasonable effort to locate the owner or other person having charge or control of same representative shall have recourse to such remedies as are provided by law to secure entry.

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CHAPTER 4: ENFORCEMENT

§ 92104.00 ENFORCEMENT

A. Penalty: Any person who commences work for which a permit is required by this Ordinance, without first obtaining such permits and approvals, shall be required, if subsequently granted a permit, to pay double all standard permit fees. The payment of such double fee shall, however, in no way excuse compliance with this Ordinance or other applicable codes.

B. Violations is a Misdemeanor: Any person who violates any of the provisions of this Ordinance is guilty of a misdemeanor and upon conviction, thereof, shall be punishable by a fine of, not to exceed, $500.00 and/or by imprisonment in County Jail for a time not to exceed six (6) months.

C. Civil Enforcement - Nuisance

1. "Notice of Violation" Recordation: Whenever the enforcement agency determines that a well: (1) has not been completed in accordance with a well permit or the plans and specification relating thereto or (2) has been constructed without the required permit, or (3) has not been properly abandoned in accordance with the standards, the enforcement agency may record a "Notice of Violation" with the Office of the County Recorder.

2. Removal of Violation Notice: The enforcement agency shall submit a removal of the "notice of Violation" to the County Recorder when: (1) it is determined by the enforcement agency or the Board of Supervisors, after review, that no violation of this Ordinance exists; or (2) all required and corrective work has been completed and approved by the enforcement agency.

D. Remedies Cumulative: The remedies available to the County to enforce this Ordinance are in addition of any other remedies available under this Ordinance or other statute, and do not replace or supplant any other remedy, but are cumulative thereto.

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APPENDIX C

IMPERIAL IRWMP
INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Appendix B

IID Desalination/Groundwater Development Feasibility Study

PC ORIGINAL PKG

Appendix B – IID Desalination/Groundwater Development Feasibility Study

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TECHNICAL MEMORANDUM

Subject: Desalination/Groundwater Development Feasibility Study

From: Ryan Alward, Richard Shatz (CHG 84)

Date: July 2009

Updated: July 2012

B.1 INTRODUCTION

This Technical Memorandum (TM) presents a compiled summary of the geology and occurrence of groundwater in the Imperial IRWMP area. The purpose of this TM is to summarize the hydrogeologic information that is relevant in assessing possible groundwater development and conjunctive use and banking opportunities in the area. Groundwater development and conjunctive use opportunities were identified for high water demand areas, specifically for geothermal and future municipal, commercial and industrial (MCI) development. Using local aquifer characteristics, the number of wells needed in each known geothermal resource area (K.G.R.A.) was determined along with the depths required to dispose of the desalination plant brine stream. The location of the desalination plants were picked to coincide with locations that have favorable aquifer characteristics and if possible, recharge potential. Preliminary design of well fields and recharge facilities has been conducted to evaluate whether groundwater could be a viable water supply for the area. Such opportunities are a key element under consideration as a possible means of augmenting existing water supplies for IID. This TM costs the well fields, brine injection wells and pipeline for 17 capital project alternatives.

B.2 SETTING

The Imperial IRWMP area lies within the Salton Trough of southern California as shown on Figure B-1. The Salton Trough is the dominant feature of the Colorado Desert geomorphic province of California. The trough is about 130 miles long and up to 70 miles wide, and is generally considered the northwesterly landward extension of the Gulf of California (Loeltz et al., 1975). The term Salton Basin (Basin) applies to the broad region draining directly into the Salton Sea. The Imperial Valley lies in the central part of the Basin south of the Salton Sea. Most of the IID service area overlies the area defined as the Imperial Valley.

The Basin is bounded to the west by the Coyote and Jacumba Mountains, to the northeast by the Orocopia and Chocolate Mountains, to the southeast by the Sand Hills and Cargo Muchacho

Mountains, and to the south by the U.S.-Mexican border. Other major hills and mountain ranges are shown on Figure B-1. The highest point along the Basin watershed boundary is Blue Angel Peak in the Jacumba Mountains at 4,284 feet above sea level. The lowest feature in the Basin is the surface of the Salton Sea, which lies more than 231 feet below sea level. Elevations along the Imperial Valley floor range from approximately sea level near Calexico to approximately 230 feet below sea level at the south shore of the Salton Sea to the north-northeast, a slope of approximately seven feet per mile. The Mexicali Valley is a southern extension of the same general topographic feature into Mexico. The northern Mexicali Valley is part of the Salton Basin and drains north across the U.S. border. The southern Mexicali Valley drains to the Gulf of California.

The present day Salton Sea was formed in 1905, when Colorado River water flowed through a break in an irrigation diversion structure that had been constructed along the US/Mexican border to divert the river's flow to agricultural lands in the Imperial Valley. Until that break was repaired in 1907, the uncontrolled diversions of river water drained into the Salton Basin, a closed interior basin whose lowest point is about 278 feet below mean sea level.

Historically, the Colorado River's course has changed several times. At times, the river discharged to the Gulf of California as it does today. At other times it flowed into the Salton Trough. Lake Cahuilla, the name used for any of the several prehistoric lakes to have occupied the Salton Trough, dried up some 300 years ago. In the past 2000 years, archaeological records indicate that the Colorado River headed northwest into the Salton Trough more often than it headed south into the Gulf of California (IID, 2007).

The Salton Sea is a critical component of the Pacific Flyway migratory corridor as it is an essential over-wintering site for thousands of migratory waterfowl. Its marsh areas provide significant habitat for the endangered yuma clapper rail.

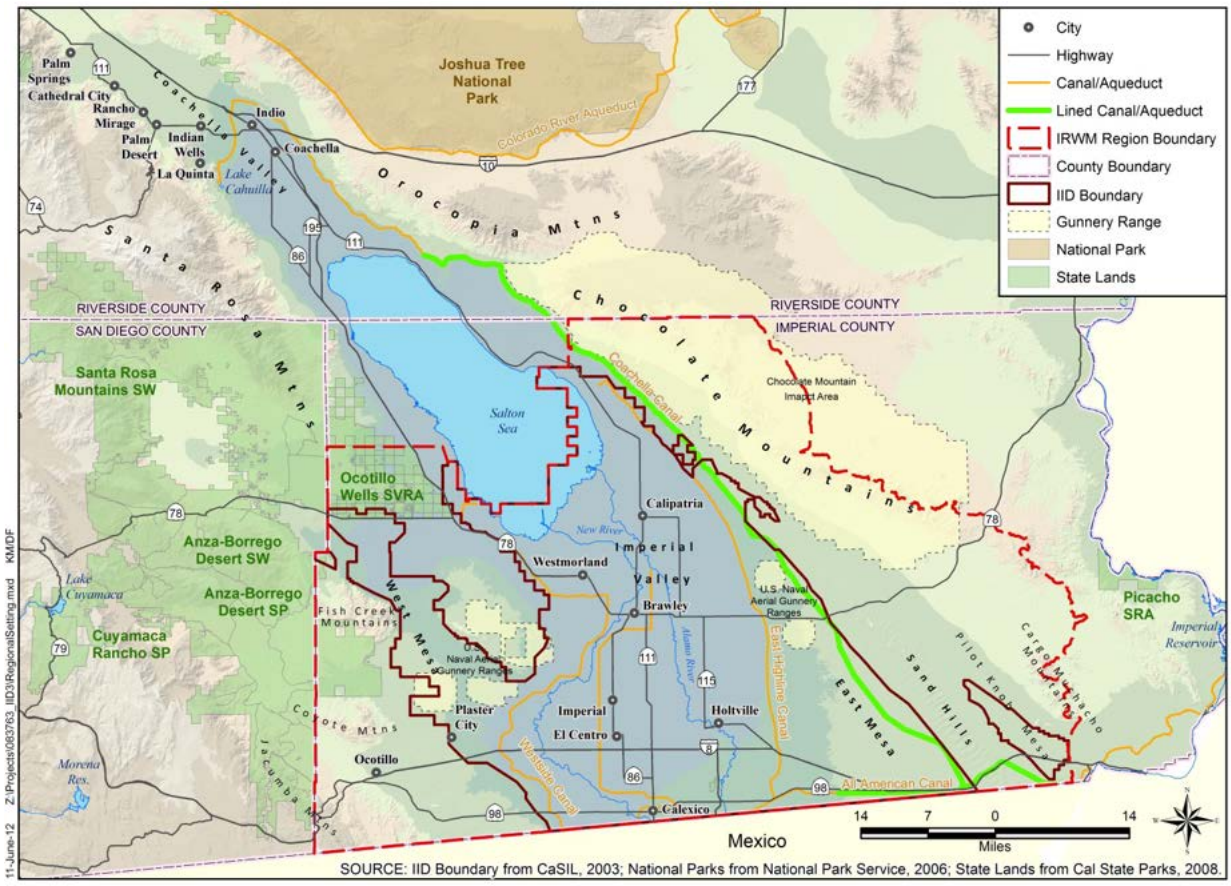


Figure B-1.Regional Setting

In general, the Imperial IRWMP area can be discussed in terms of three principal physiographic and hydrologic areas: (1) the Imperial Valley which lies within the valley floor generally inside the boundaries of the Westside Main and East Highline Canals and north of the Mexico; (2) the East Mesa which is generally east of the East Highline Canal; and (3) the West Mesa generally west of the Westside Main canal. The Ocotillo-Coyote Wells Groundwater Basin is located adjacent to the southwest corner of the West Mesa but is separated from the West Mesa by two faults which act as partial barriers to groundwater flow and is designated as a sole source aquifer (USEPA, 1996). These areas will be discussed in detail later.

B.3 CLIMATE

The Salton Basin has a typical desert climate, characterized by hot, dry summers and mild winters. Summer temperatures typically exceed 100°F, with winter low temperatures rarely dropping below 32°F. Rainfall in the Basin averages less than three inches per year, with the majority of the rainfall occurring from November through March. Total recharge to the groundwater system from precipitation within the valley was estimated to be somewhat less than 10,000 acre-feet per year

(Loeltz et al., 1975). Evaporation averages over 98 inches per year in Imperial Valley, while plant evapotranspiration is as high as 60 to 72 inches per year.

B.4 SURFACE WATER AND DRAINAGE

A generalized schematic diagram of the flow of imported surface water into and through the central Imperial Valley is shown on Figure B-2. Effectively all of the surface water coming into Imperial Valley is a result of diversions from the Colorado River. In fact, with the exception of San Felipe Creek and groundwater discharging springs to the northeast of the Salton Sea, the existence of surface water anywhere in the Basin is dependent upon the inflow of irrigation water from the Colorado River. Diversions to the Imperial Valley and lower part of the Coachella Valley are through the All-American Canal (AAC) and Coachella Canal.

Initially both the AAC and the Coachella Canal were unlined canals through the IRWMP area. A 49-mile long section of the old unlined Coachella Canal, starting at the AAC and through East Mesa, was abandoned in 1979 when a new lined canal was constructed. An additional 36.5-mile segment of the canal, continuing northward from the 1979 lining project, was lined during the Coachella Canal Lining Project which began in October 2004 and was completed in December 2006, when 26,000 acre-feet per year of conserved water began flowing to project beneficiaries. The All-American Canal Lining Project began construction in June 2007 and was completed in April 2010, when its full yield of 67,700 acre-feet per year was made available to project beneficiaries. The project lined a portion of the canal from about six miles east of the East Highline Canal to about five miles east of the Coachella Canal.

IID operates three primary branches out of the AAC to the central irrigated area of Imperial Valley. These are the East Highline, Central and Westside Main Canals. Because the Salton Basin is a closed drainage system, all surface flow not percolating into subsurface storage, evaporating or being consumed by vegetation eventually flow to the Salton Sea as part of environmental commitments. The major drainage features in the Salton Basin are the north flowing New and Alamo Rivers, San Felipe Creek, and Tule Wash. The New and Alamo Rivers, which are essentially collector drains, account for approximately 75 percent of the total surface runoff from the Imperial Valley, and nearly all of the discharge to the Salton Sea (Montgomery Watson, 1995). Both rivers cross the central area of irrigated farmland, and intercept the area's elaborate system of drains to convey water to the Salton Sea. Total flow from the New and Alamo Rivers, and the drains, into the Salton Sea between 2007 and 2011 averaged about 1.0 million acre-feet per year (MAFY) with 0.85 MAFY from Mexico.

The Imperial Valley consists of approximately 475,000 acres of irrigated and drained farmland (IID, 2012). Water is imported into the Imperial Valley via the AAC. In addition, three primary canals feed off the AAC into Imperial Valley: the Westside Main, the Central Main and East Highline canals. From these main canals, irrigation water is distributed throughout the central irrigated area via supply canals, laterals, and turnouts. The irrigated portion of the Imperial Valley also contains an extensive

network of farm-gate lateral drains and subsurface tile drains. Tile drains were installed below the fields to prevent water logging of crops, and salt buildup in the clay-rich soils. The system of lateral drains and tile drains therefore determines and maintains the level of the groundwater table throughout most of the central Imperial Valley. Typically at a depth of five to seven feet, the tile drains carry subsurface water to sumps at the tail end of selected fields or discharge directly into lateral drains. The lateral drains receive both tailwater and tilewater drainage. All drain water is ultimately discharged to the Salton Sea, either directly from drainage ditches, or by way of the New and Alamo Rivers. Therefore, the vast majority of the flow in the drain system is agricultural runoff (IID, 2012).

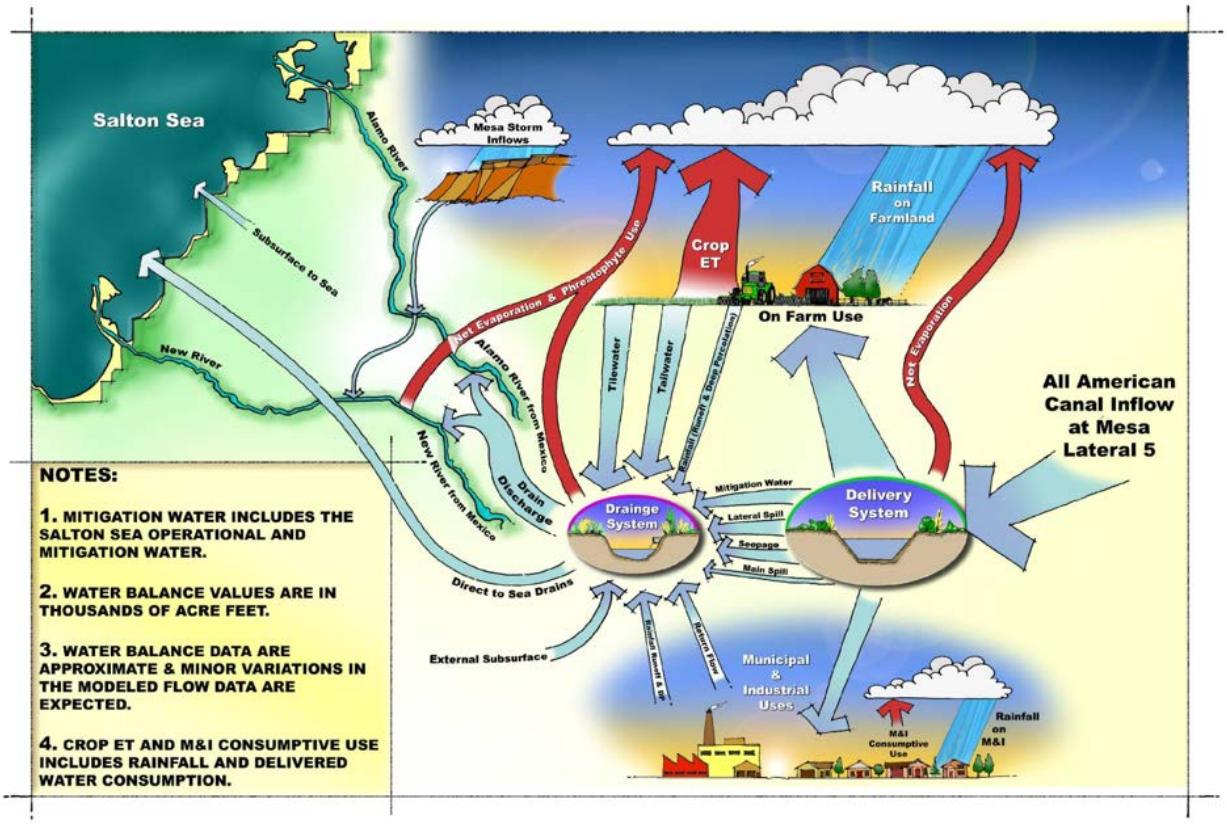


Figure B-2. Water Balance Components and Flow Paths, Imperial Valley
Source: Davids Engineering, et al., May 2007, IID Delivery System Analyses (Vol 2) Technical App. 1.b, p 2

B.5 SOIL TYPES

Soils in the Imperial IRWMP area were mapped and described by Zimmerman (1981). As previously mentioned, the Imperial IRWMP area can be broadly viewed in terms of three different physiographic areas: the Imperial Valley, and the East and West Mesas. The ten mapped units in this survey have been grouped into two general kinds for broad interpretive purposes, as indicated on Figure B-3. A generalized map of soil types in area is provided on Figure B-4. Zimmerman (1981) identifies ten

generalized soil units in the area. Consistent with the three physiographic regions above, these two groups and the map units in each group are described below.

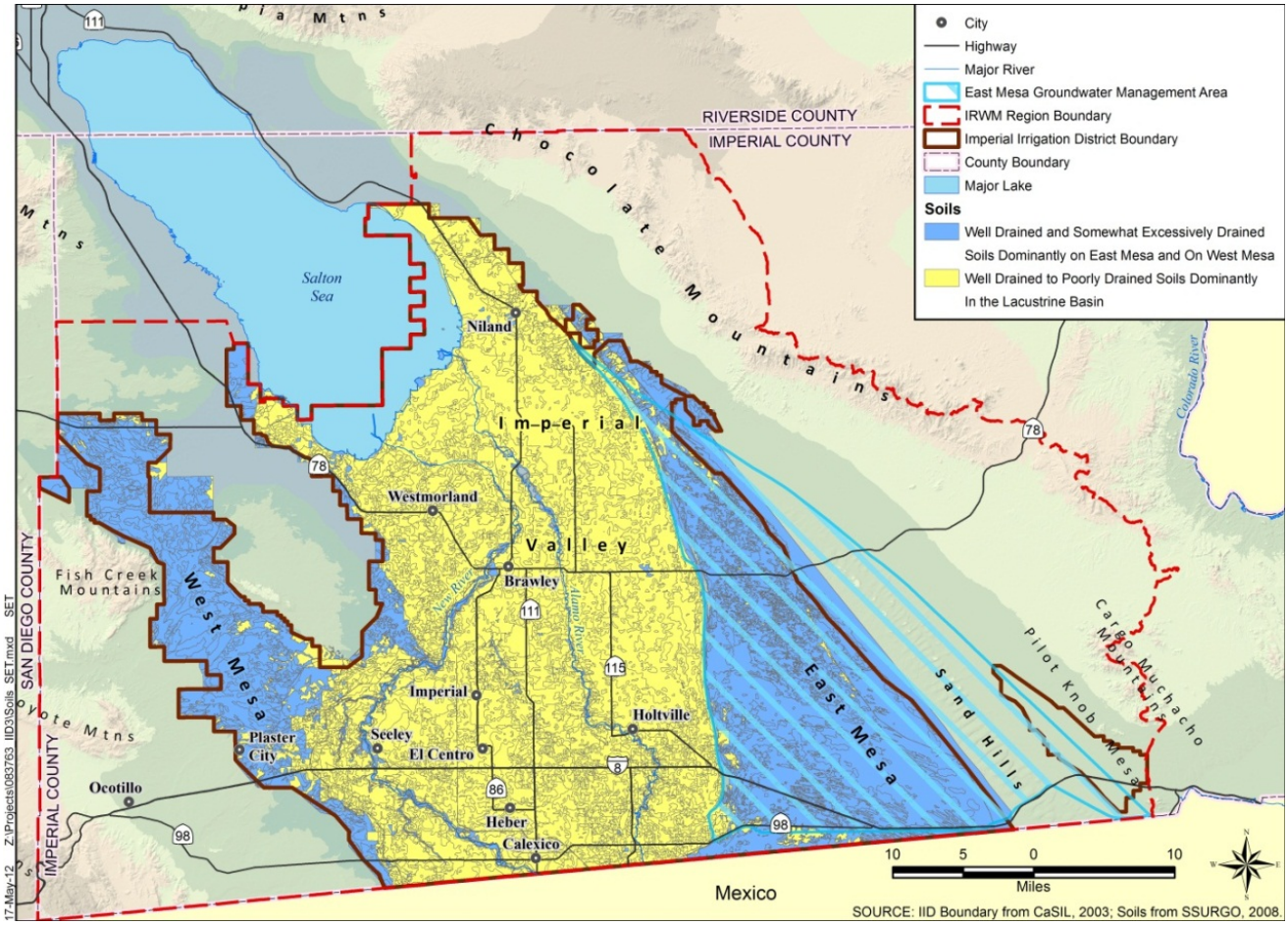


Figure B-3. Generalized Soil Types, Imperial IRWMP Area

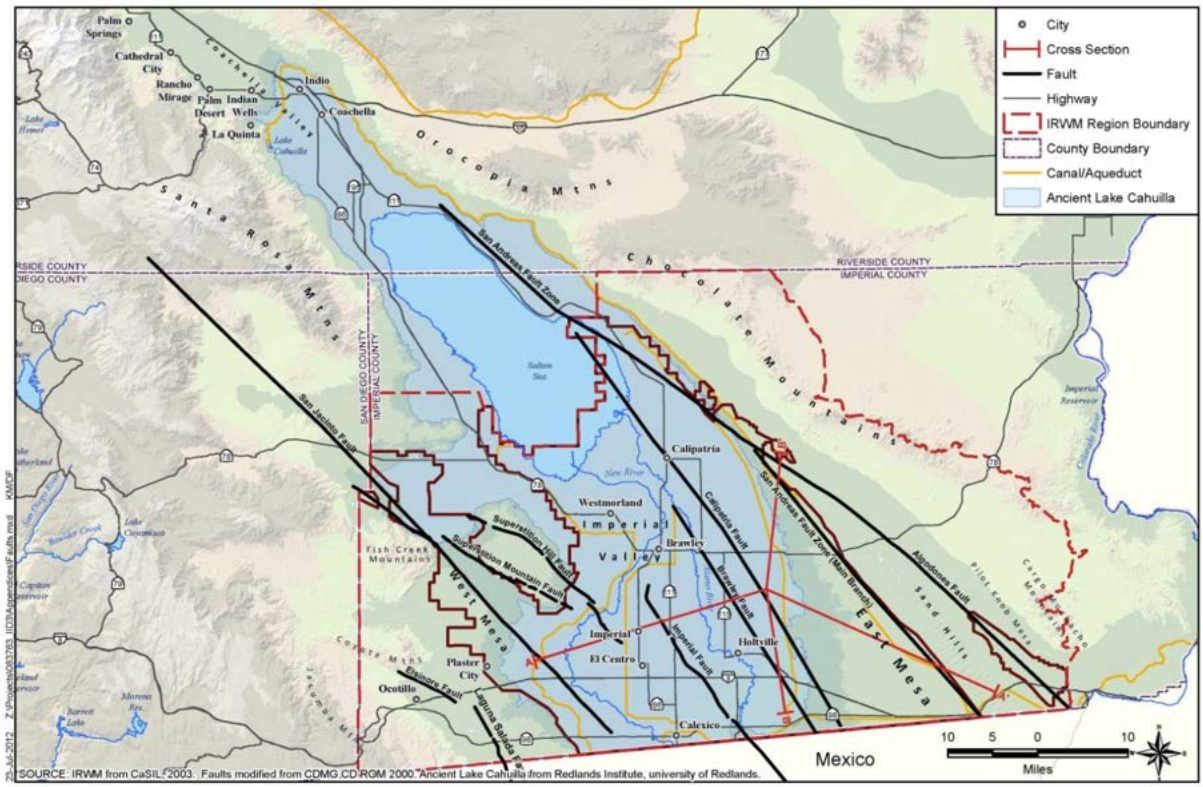


Figure B-4. Faults in Imperial Basin

Imperial Valley. Soils in this area are predominantly well drained to poorly drained soils. The soils in this group occupy the area of prehistoric Lake Cahuilla in the central valley, but also a few areas on West Mesa. The soils in this area are nearly level. Elevation is about 230 feet below sea level adjacent to the Salton Sea and about 200 feet above sea level on West Mesa. They are mainly moderately well drained to well drained, but some soils adjacent to the Salton Sea are poorly drained. A perched water table is present in most soils in the central area because of the extensive irrigation practices and underlying poorly drained clayey soils. The surface layer ranges from gravelly sand to silty clay. Soils in this group are used mainly for irrigated cropland. Although water can percolate through these soils, it typically doesn't reach the deeper aquifers because it is intercepted by the extensive network of drains.

East and West Mesas. Soils in the areas of the East and West Mesas are predominantly well drained to excessively drained and occur on the mesas adjacent to the old Lake Cahuilla lakebed. These soils have developed due to different geologic processes than the central valley area. In the East and West Mesas, sediments have been deposited not as a result of lakebed deposition, but rather chiefly as a result of stream/flood and wind processes. For these reasons, soils in the East and West Mesas are more coarse grained and hydraulically transmissive than the Central Irrigated Area. The soils in the

mesas are nearly level to moderately steep, depending on location. The surface layer ranges from sand to silty clay. Soils in this group are mainly used for desert recreation or as desert wildlife habitat.

Ocotillo-Coyote Wells Groundwater Basin. Soils in the areas of the Ocotillo-Coyote Wells Groundwater Basin East and West Mesas are predominantly well drained to excessively drained

B.6 General Geologic Framework

The Salton Trough is a sediment-filled fault block bounded by the Elsinore and San Jacinto Faults on the west and the San Andreas Fault zone on the east (Loeltz et. al, 1975; Norris and Webb, 1976), as shown on Figure B-4. The trough is structurally controlled by the San Andreas Fault system, and is related to the rifting of the Baja California peninsula away from mainland Mexico. The bottom of the sediment-filled basin is thousands to tens of thousands of feet below the current ground surface (Loeltz et al., 1975). Beneath the sediments and exposed in the surrounding mountains is the basement complex which is composed of igneous, volcanic and metamorphic rocks.

The San Andreas Fault system includes numerous parallel or en-echelon faults that traverse the valley in a northwest-southeast trending manner. Related faults that are present within the trough in the central valley area include the Imperial, Brawley, and Calipatria Faults. The southern extension of the Elsinore Fault is the Laguna Salada Fault which forms the eastern boundary of the Ocotillo-Coyote Wells Groundwater Basin.

The trough has been filled with marine and non-marine sediments that overlie a pre-Tertiary bedrock complex. Up to 20,000 feet of marine and non-marine Cenozoic deposits underlie the Imperial Valley, with the thickest deposits occurring in the central part of the Imperial Valley. Non-marine sediments in the Imperial Valley include horizontally stratified lacustrine silts and clays deposited by ancient Lake Cahuilla, and alluvial sands and gravels associated with seasonal floods from the Colorado River (Loeltz et al., 1975). The known extent of Lake Cahuilla, which was present in the Basin as recently as a few hundred years ago, is shown on Figure B-4 as a light blue color.

The broad Imperial Valley area is bordered to the east and west by the East and West Mesas, respectively. These areas of the mesas represent gently sloping elevated terrains on which alluvial and wind-blown deposits of a more coarse nature have been accumulated. The West Mesa is chiefly underlain by an assemblage of alluvial fans shed from the mountain ranges to the west of the mesa. The East Mesa is primarily a relic of Colorado River flood and fan delta deposits overlain by more recent wind-blown sands. The extent of these mesas roughly coincides with the traceable shoreline of pre-historic Lake Cahuilla (Loeltz et al., 1975) and, thus, roughly defines the areas where the fine-grained, lake bed deposits give way laterally to coarser grained deposits. This general geologic model for the Basin has strong influence on the occurrence and movement of groundwater.

B.7 GROUNDWATER

This section describes the geology, aquifer characteristics and water quality in the Imperial IRWMP area.

B.7.1 Aquifers and Hydrostratigraphy

Imperial Valley. Most studies of groundwater conditions in the Imperial Valley focus exclusively on the upper 1,000 feet of water-bearing strata. Data are limited on groundwater in the area, owing to the fact that groundwater in the upper 300 feet is generally of poor quality and well yields are relatively quite low. In addition, though it exists in large quantities, historically there has been little need to investigate and develop the groundwater in the valley area due to the availability and low cost of imported Colorado River water. Studies show that groundwater in the Imperial Valley generally occurs in two water-bearing zones: (1) a shallow (0 to 300 feet), unconfined, aquifer that is bounded at depth by a low permeability clay (aquitard); and (2) a intermediate (300 to 1,500 feet), semi-confined aquifer that is bounded above by the aquitard and at depth by the older marine and non-marine sediments (Tetra Tech, 1999; Montgomery Watson, 1995). A third, deeper aquifer has been identified by some authors, and may be present at depths greater than 1,500 feet, but is likely impractical in terms of water supply resources because of its poor water quality (Durbin and Imhoff, 1993) and water temperature. The following diagrams present generalized geologic cross-sections across the Imperial Valley. The locations of the cross-section lines with respect to the valley are shown on Figure B-5. Cross-section A-A' (Figure B-6) provides an east-west profile of the sediments, and cross-section B-B' (Figure B-7) represents a north-south profile of sediments across the Imperial Valley and into East Mesa.

The cross-sections illustrate in a generalized way the horizontal stratification in the Imperial Valley and East Mesa, and the depth relationships between the water-bearing aquifers and the intervening aquitards.

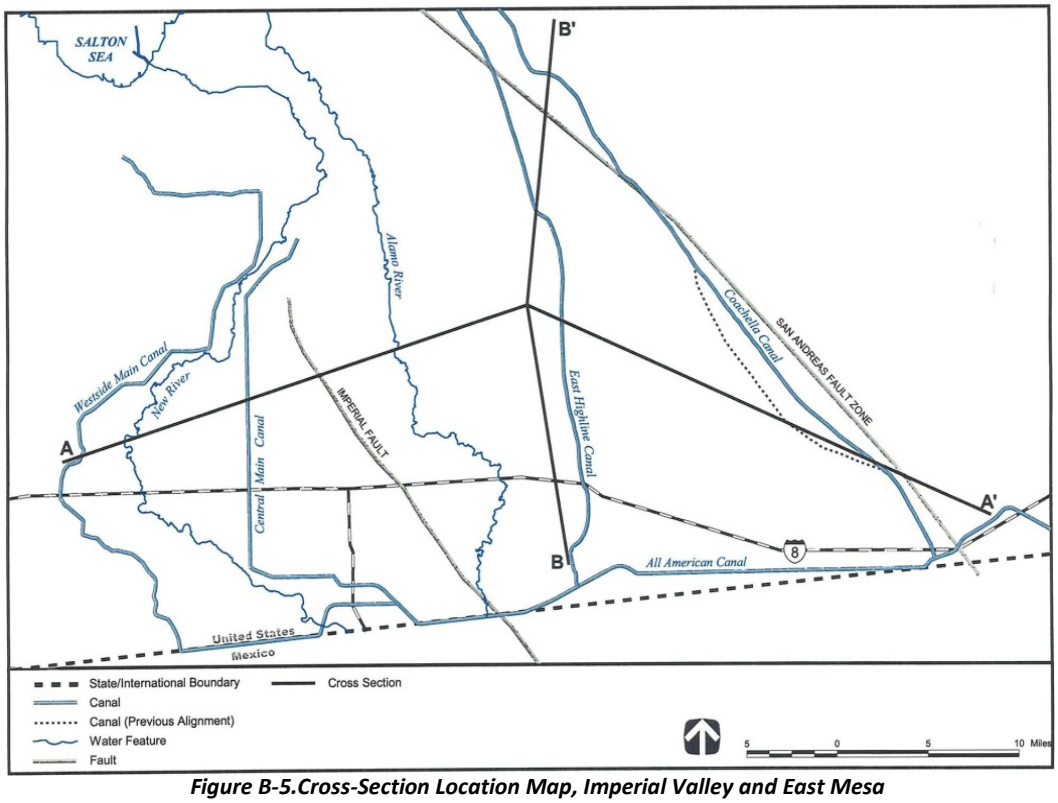


Figure B-5.Cross-Section Location Map, Imperial Valley and East Mesa

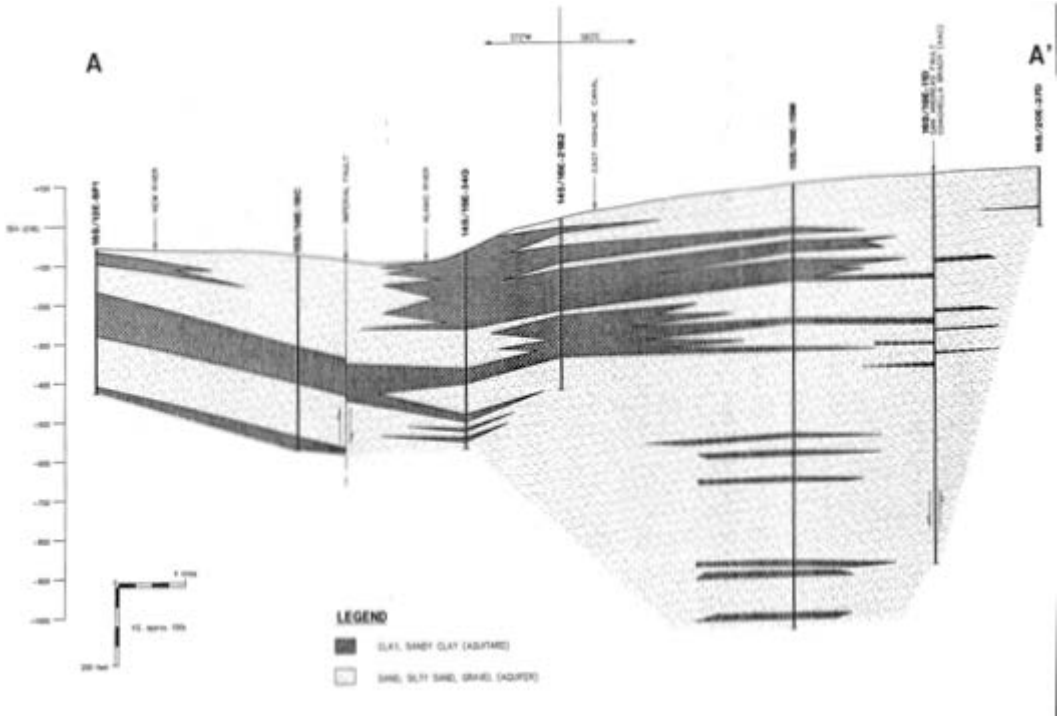


Figure B-6.Cross-section A-A'

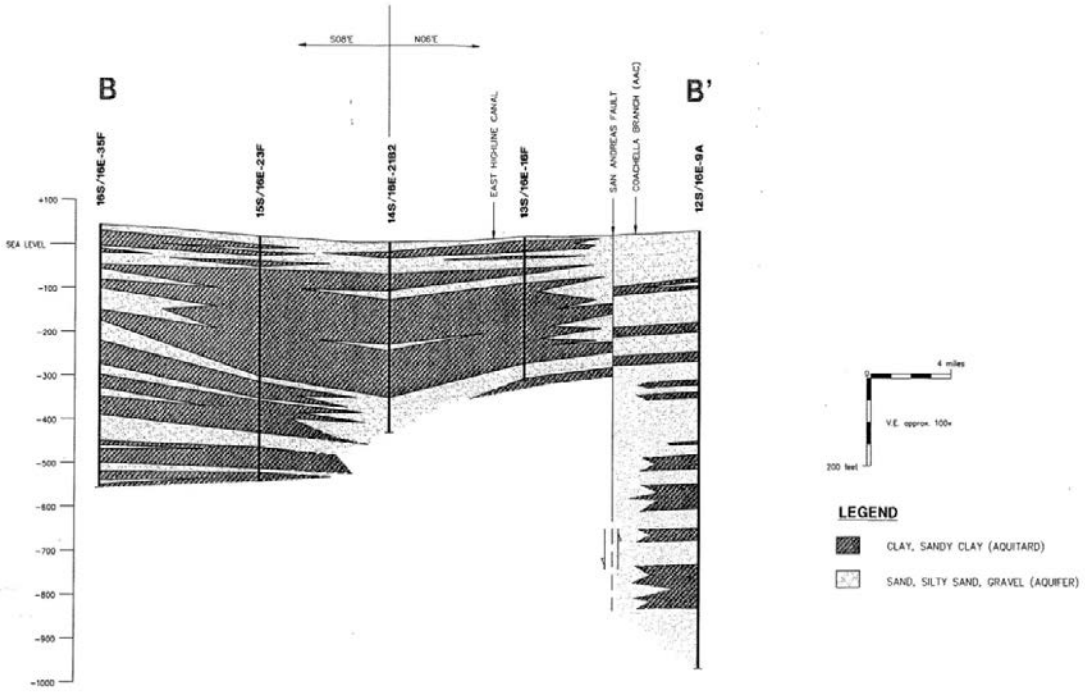


Figure B-7. Cross-section B-B'

Hydraulic communication between the upper (unconfined) and lower (semi-confined) water- bearing zones is reportedly weak, but likely varies depending on geographic location. Elevations of the base of the deeper aquifer vary from -800 feet mean sea level (MSL) in the center of the Imperial Valley to -200 feet MSL in the northeast. The upper aquifer averages 250 feet in thickness, and the deeper aquifer averages 550 feet in thickness. The aquitard separating the two water-bearing zones varies in thickness from 0 to 260 feet. This aquitard lies under the Imperial Valley but reportedly pinches out beneath East Mesa near the San Andreas Fault (and likely toward the West Mesa as well) such that only one, chiefly homogenous aquifer is present beneath the mesas. The homogeneity of the aquifer from the east to the west is interrupted by the Calipatria and the Brawley Faults. Historically, there has been up to a 10 foot head difference across the Calipatria Fault with the water levels lower on the west side of the fault (Crandall, 1983). The Brawley Fault creates about a two-foot difference in water levels, indicating that the fault is not as much of a barrier to flow as the Calipatria Fault (Crandall, 1983). The water surface gradient between the Calipatria Fault and the Brawley Fault north of the East Highline Canal have been recorded as decreasing to the northwest which indicates the flow of the water parallel to the faults, indicating the faults are at least a partial barrier to flow (Crandall, 1983).

West Mesa. The West Mesa is a somewhat loosely defined region of gently sloping desert land that lies south of the Salton Sea, west of the western shoreline of Lake Cahuilla, and east of the Coyote and Jacumba Mountains. The area includes portions of several relatively small groundwater subbasins for which little direct information is known. The exception to that is the Ocotillo-Coyote Wells Groundwater Basin, for which studies on both the quality and quantity of available groundwater exist (Bookman-Edmonston, 1996; Bookman-Edmonston, 2004). This area of West Mesa includes the area

around the towns of Ocotillo and Plaster City where the U.S. Gypsum plant operates. The groundwater aquifer in the Ocotillo-Coyote Wells Groundwater Basin is characterized as unconfined, with a saturated thickness of about 400 feet and an average depth to groundwater of approximately 100 feet. The aquifer is generally homogenous and of a more coarse-grained nature than the central valley area. Thus, the data does not indicate separate water-bearing zones or intervening aquitards of any regional significance. Groundwater and surface water flow mimic the topography, flowing generally east, toward discharge areas in the Imperial Valley and Salton Sea.

Faults play a key role in the occurrence and movement of groundwater in all areas of Imperial IRWMP area. Figure B-4, shows the locations of the faults. In the West Mesa area, the Elsinore Fault and its southerly extension the Laguna Salada Fault, transect the Ocotillo-Coyote Wells Groundwater Basin act as partial barriers to the flow of groundwater out of this area toward the Imperial Valley.

East Mesa. East Mesa is located in the southeastern portion of the Salton Basin, and is described as the broad area east of the East Highline Canal and east margin of pre-historic Lake Cahuilla, and west of the Sand Hills Fault. The Sand Hills Fault (also named the Algodones Fault), an easterly splay of the San Andreas Fault system, is mapped as bordering the east side of the Sand Hills (Loeltz et. al., 1975). The East Mesa is also roughly bordered by the Coachella Canal on the east and the AAC on the south. The East Mesa is an alluvial surface that slopes gently west-southwest, covered with thin veneers of wind-blown sand. The East Mesa aquifer is chiefly unconfined, homogenous, and composed of coarse-grained deposits of gravels, sands, silts, and silty clays that were deposited by the Colorado River.

In East Mesa, the San Andreas Fault zone includes a main branch along the west margin of the Sand Hills, and an easterly splay identified as the Algodones Fault (Loeltz et. al., 1975). These faults act as partial barriers to the westward flow of groundwater from this area. The Calipatria Fault also crosses a small portion of the East Mesa along the southwest margin and also impedes the flow of groundwater out of East Mesa.

B.8 Aquifer Recharge and Discharge

In the Imperial Valley, recharge to the groundwater reservoir by subsurface inflow from tributary areas is small compared with recharge from the imported Colorado River water. Total recharge to the groundwater system from precipitation within the valley was estimated to be somewhat less than 10,000 acre-feet per year (Loeltz et al., 1975). However, Montgomery Watson (1995) cites a more likely recharge rate of 0.02 inch per year for the Ocotillo area, which equates to approximately 800 acre-feet of recharge per year, over the 500,000 acres of un-irrigated land in the West Mesa. Major sources of groundwater discharge from Imperial Valley aquifers include groundwater discharging directly into the New and Alamo Rivers, pumping in Mexicali Valley to the south, intercepted shallow groundwater from the agricultural fields by drains and the extensive tile drain network, and subsurface discharge into the Salton Sea. Phreatophytes also remove groundwater by evapotranspiration in areas

where the groundwater table is shallow, especially in the rivers and drains and by wetlands (Tetra Tech, 1999). Artesian groundwater conditions exist in the Imperial Valley, primarily east of the Alamo River in a band extending roughly from Holtville in the south to Calipatria in the north.

In the West Mesa area, recharge to the aquifer is from two sources: precipitation falling directly on the area and percolation of stream runoff from the Coyote and Jacumba Mountains to the west. Sources of discharge in the West Mesa include pumpage by U.S. Gypsum, limited urban water use into the town of Ocotillo, and subsurface outflow across the Elsinore/Laguna Salada faults and toward Mexico (Bookman- Edmonston, 1996).

In the East Mesa, the source of water supply recharge to the groundwater aquifer was from canal seepage from the old unlined Coachella Canal and the AAC. However, recharge has essentially ceased when portions of unlined Coachella Canal were lined in 1979. Although portions of the AAC were lined between 2006 and 2010, the project did not complete lining of the canal completely through the East Mesa area, so some recharge from the canal to the mesa still continues. Due to the arid conditions, virtually no direct precipitation reaches the groundwater aquifer in the East Mesa (Crandall, 1983). Groundwater from the East Mesa is discharged at ground surface in springs and in the subsurface into Imperial Valley aquifers. Discharge of groundwater onto ground surface in springs occurs at areas of shallow groundwater along the AAC. In these areas, where wetlands have been created from canal seepage, discharged groundwater consumptive use is mainly attributable to evapotranspiration by phreatophytes and surface evaporation. Subsurface outflow in the East Mesa occurs toward the Imperial Valley, toward Mexico, and into a portion of the East Highline Canal.

B.8.1 Aquifer Storage

The storage capacity of the Imperial Valley has been estimated at approximately 14 MAF of water (CDWR, 1975). Available aquifer storage within the East Mesa in between the East Highline Canal and the old unlined Coachella Canal is estimated to be one (1) MAF (USBR, 1988). The aquifer storage potential of the West Mesa has not been quantified; however, aquifer conditions in the area appear favorable for storage of water. However, it will be more difficult to supply the water to the West Mesa area as there are no canals along the topographical higher areas where permeable sediments are present.

B.8.2 Groundwater Quality

The Imperial Valley contains a large area of poor quality groundwater that is generally regarded as unsuitable for domestic or irrigation use without treatment. The chemical quality of groundwater differs greatly from place to place, and salinity is the primary water quality issue. Total dissolved solids (TDS) range from several hundreds to more than 10,000 milligrams per liter (mg/L). Generally, Ocotillo-Coyote Wells Groundwater Basin sole source aquifers, which receive recharge from precipitation on the Jacumba Mountains, contains only a few hundred mg/L of dissolved solids. Beneath East Mesa the water quality is moderate to poor and has been locally influence by seepage from the old unlined reaches of the Coachella Canal and AAC.

In Imperial Valley, concentrations of nitrate and fluoride higher than the concentration recommended for drinking water are common. High concentrations of sulfate may also be present. Concentrations of boron are typically higher than those recommended for certain agricultural crops. Selenium, also a constituent of concern in the Imperial Valley drains, is thought to be a principally imported contaminant from the Colorado River supply.

In the Imperial IRWMP area, water quality was interpreted to define the areal and vertical distribution of salt within the aquifers (Durbin and Imhoff, 1993). TDS concentrations were summarized for three distinct water-bearing zones, shallow (80' to 300'), intermediate (300' to 1,500') and deep (>1,500') as shown on Figure B-8 through Figure B-10, respectively. The shallow aquifer contains highly variable water quality ranging from about 800 to over 10,000 mg/L TDS. Relatively consistent water quality is present in the shallow aquifer beneath East Mesa ranging from about 800 to 2,200 mg/L TDS. The intermediate aquifer beneath the Imperial Valley contains water that is fairly uniform averaging about 2,200 mg/L, while the deep aquifer contains more uniform the poorest quality water.

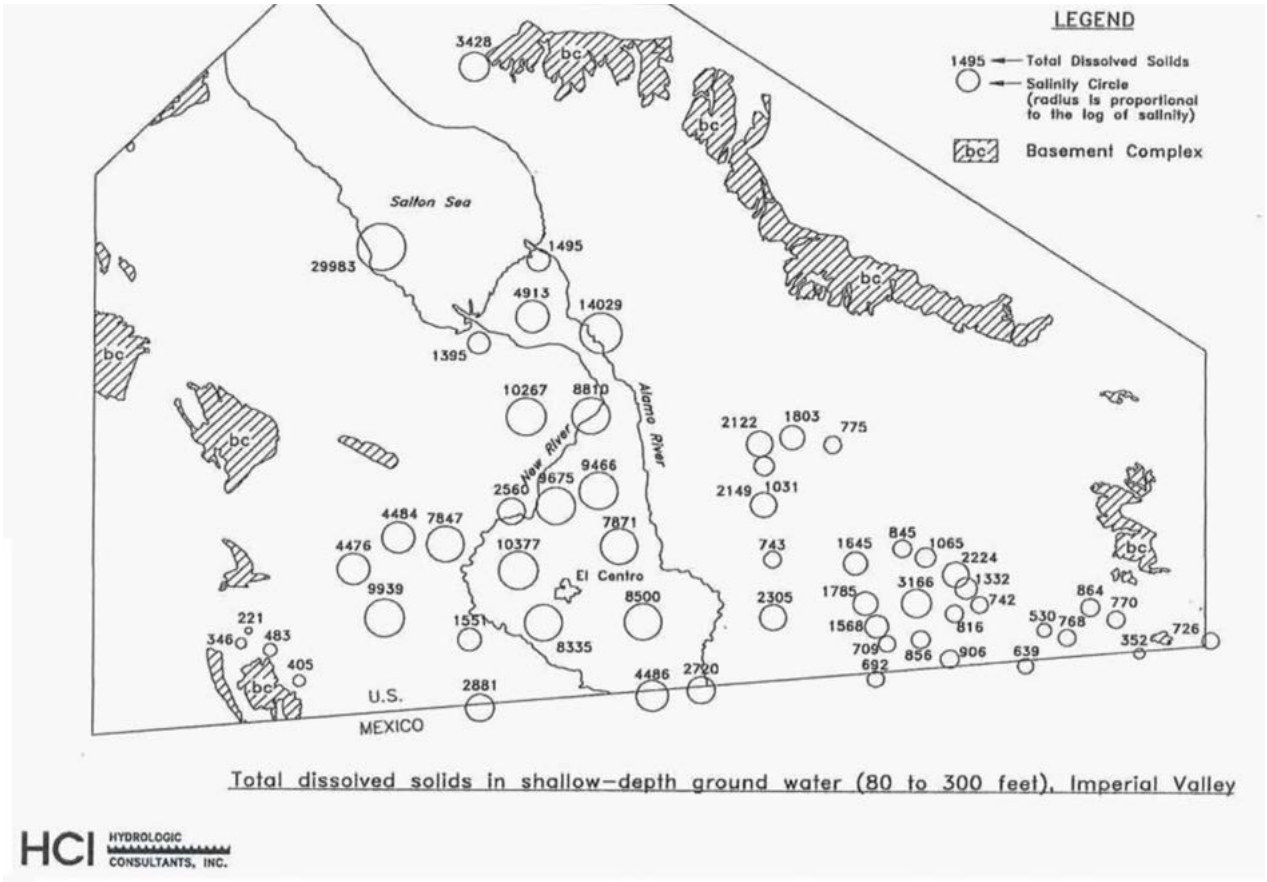
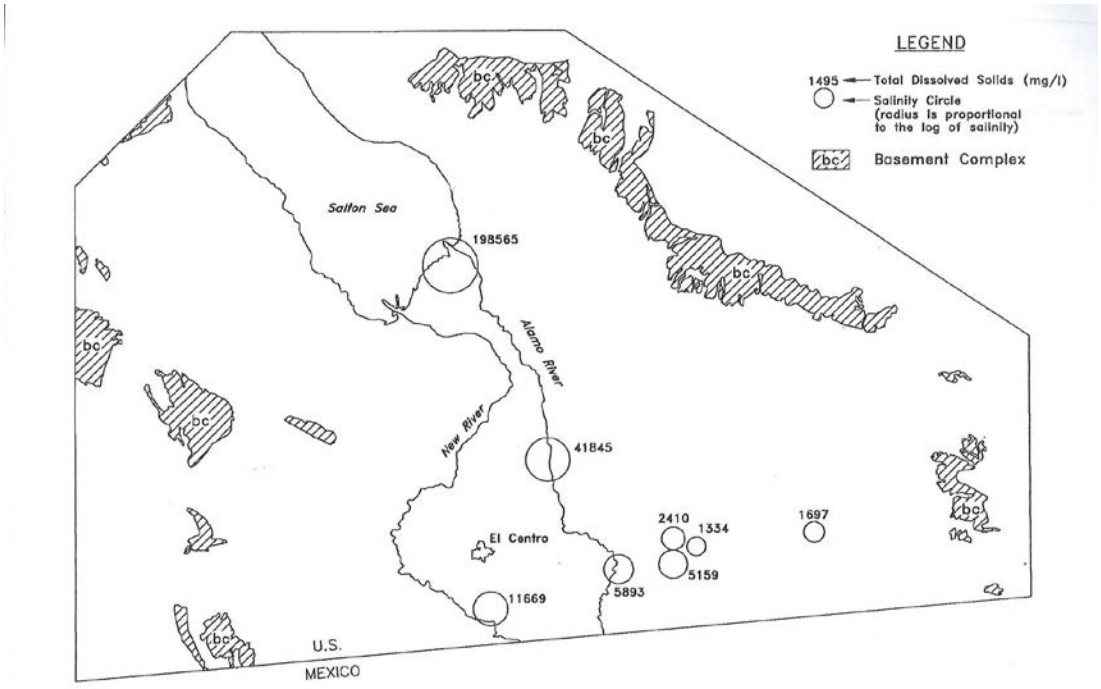


Figure B-8.Shallow Aquifer Water Quality



Total dissolved solids in deep ground water (greater than 1500 feet), Imperial Valley

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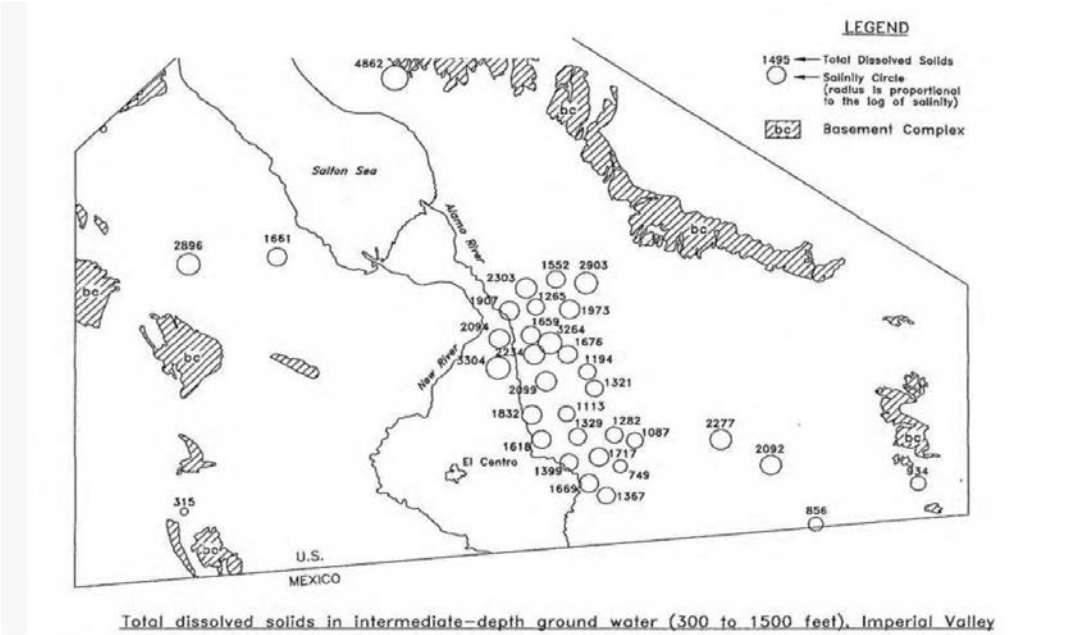
Figure B-9. Shallow Aquifer Water Quality



Total dissolved solids in intermediate-depth ground water (300 to 1500 feet), Imperial Valley

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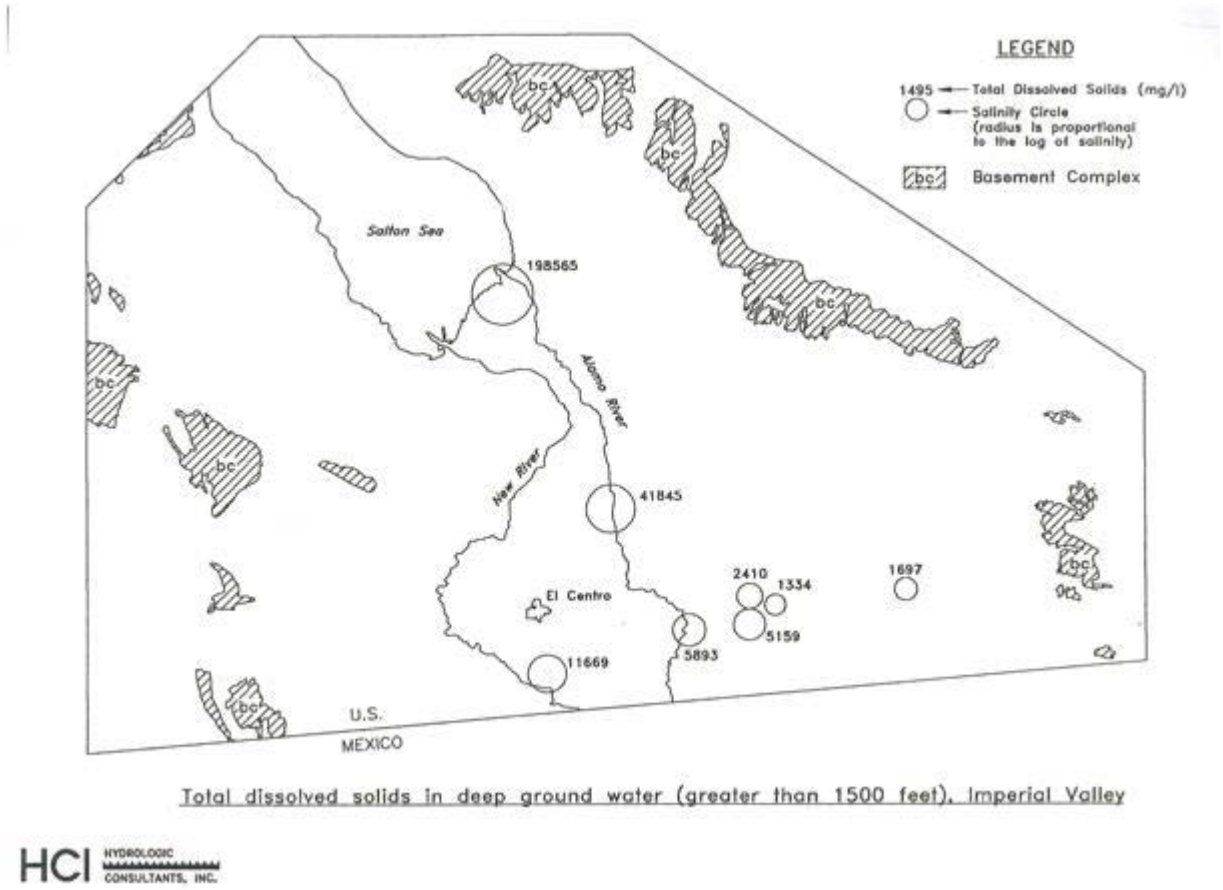
Figure B-10.Intermediate Aquifer Water Quality



Total dissolved solids in deep ground water (greater than 1500 feet), Imperial Valley

HCI HYDROLOGIC CONSULTANTS, INC.

Figure B-11.Deep Aquifer Water Quality

Additional water quality investigations were performed in the East and West Mesas that refine the previous regional studies. In the West Mesa, groundwater is pumped for industrial use at the U.S. Gypsum plant at Plaster City. The quality of the groundwater pumped in this area is reportedly good. In addition, the U.S. Geological Survey has conducted water quality sampling in the Ocotillo-Coyote Wells Groundwater Basin since 1977 (Bookman-Edmonston, 1996). Water quality data for this sole source aquifer suggest average TDS concentrations range from 300 to 400 mg/L due to recharge being derived from precipitation on the adjacent Jacumba mountains. As previously discussed, the Elsinore-Laguna Salada fault complex comprises a partial barrier to the flow from east to west of groundwater from the Ocotillo-Coyote Wells Groundwater Basin to West Mesa. TDS concentrations are notably higher on the east side of the faults (i.e., toward the Imperial Valley), ranging up to 15,000 mg/L in some wells. On the east side of the faults, shallow wells have higher TDS concentrations than deeper wells, indicating that poorer quality groundwater overlies better quality.

The greatest amount of available data on groundwater quality pertains to the East Mesa area. While there is little to no permanent groundwater pumping, the East Mesa area includes a large number of wells and has been the subject of investigation for possible groundwater development and banking for several decades. There are oil and gas exploration wells, geothermal wells, test holes, monitoring

wells associated with canal seepage from the AAC and Coachella Canal, and a small number (12) of water supply wells, some of which are used for agricultural purposes. The majority of the wells are located in the southern portion of the East Mesa area, along the AAC. Two aquifers were identified in the area: a shallow unconfined zone from 0 to 85 feet and a deeper *semi*-confined zone from 85 to 160 feet (Crandall, 1983). The two water-bearing zones were differentiated based on chemical character, pH, TDS, and the perforated interval of the particular well. Overall, the median TDS is slightly higher in the shallow aquifer than in the deeper aquifer, and the water in the deeper aquifer contains water (sodium bicarbonate in character) from a different source. Table B-1 provides the analysis and characterization of the water quality.[1]

[1]

Table B-1. East Mesa Water Quality

	Zone A (85 to 160 Feet)		Zone B (0 to 85 Feet)	
Chemical Character	Sodium Chloride	15 wells	Sodium Chloride	13 wells
	Sodium Sulfate	3 wells	Sodium Sulfate	10 wells
	Sodium Bicarbonate	0 wells	Sodium Bicarbonate	6 wells
pH	Range: 7.4- 8.6	17 wells	Range: 4.3-11.2	17 wells
	Common 7.4- 8.6		Common 6.9- 9.0	
	4.3- 6.4	0 wells	4.3- 6.4	4 wells
	6.5- 7.5	1 well	6.5- 7.5	5 wells
	7.6- 8.6	16 wells	7.6- 8.6	11 wells
	8.7- 9.7	0 wells	8.7- 9.7	3 wells
	9.8-11.2	0 wells	9.8-11.2	4 wells
TDS (ppm)	Range 589-2860	17 wells	Range: 250-2620	27 wells
	Common: 750- 995	9 wells	Common: 434- 787	16 wells
	589	1 well	250	1 well
	1270	1 well	882-1413	7 wells
	1710-2860	6 wells	1750-2620	3 wells
	7112	1 well	7151	1 well
F (ppm)	Range: 0.2-1.4	10 wells	Range 0.1-1.6	22 wells
	1.9	1 well	3	1 well
B	0.26 and 0.46	2 wells	0.41	1 well

Source: Crandall, 1983

Groundwater Temperature

Along with varying TDS, local groundwater also has varying temperatures. Geothermal heat in the Imperial Valley and the East Mesa is used to generate geothermal energy. Figure B-11 shows the Known Geothermal Resource Areas (K.G.R.A). The California Department of Conservation Division of Oil, Gas & Geothermal (DOGGR) has temperature logs for wells within the K.G.R.A.s. Several of these temperature logs were gathered and used to estimate the groundwater temperature that can be expected in different portions of the Imperial Valley. The data for the East Mesa is confidential so temperatures were estimated from the available logs for the shallow and intermediate aquifers in the Imperial Valley and extrapolated into areas where the information was not available.

Beneath the East Brawley K.G.R.A., the shallow water temperature has been reported as 90 degrees Fahrenheit (°F) (USBR, 1992). A log for a well in the East Brawley K.G.R.A. indicated that temperature ranged from 170 °F at 1,000 feet below ground surface (bgs) to 288 °F at 2,000 feet bgs. The temperature above 1,000 feet bgs was not recorded due to the sensitivity of the temperature probe but is likely cooler at shallower depths.

A temperature of 170°F was assumed for the entire East Mesa aquifer due to the similar aquifer depth and proximity to wells in the East Brawley K.G.R.A.

Groundwater temperature for the Heber K.G.R.A. was estimated using a temperature log from the HGU well 109. The temperature at 250 feet bgs was 178 °F, which is the depth of the shallow aquifer; and 308 °F at 1,500 feet bgs for the intermediate aquifer. Heber K.G.R.A. has the highest temperatures in the region for the shallow and intermediate aquifers.

Groundwater temperature for the Salton Sea K.G.R.A. was estimated using a log from the Megamax 4 well. At 300 feet bgs, at the base of the shallow aquifer, the temperature was recorded as 94 °F. The intermediate aquifer, with a depth of about 1,500 feet bgs, has a temperature recorded of 145 °F.

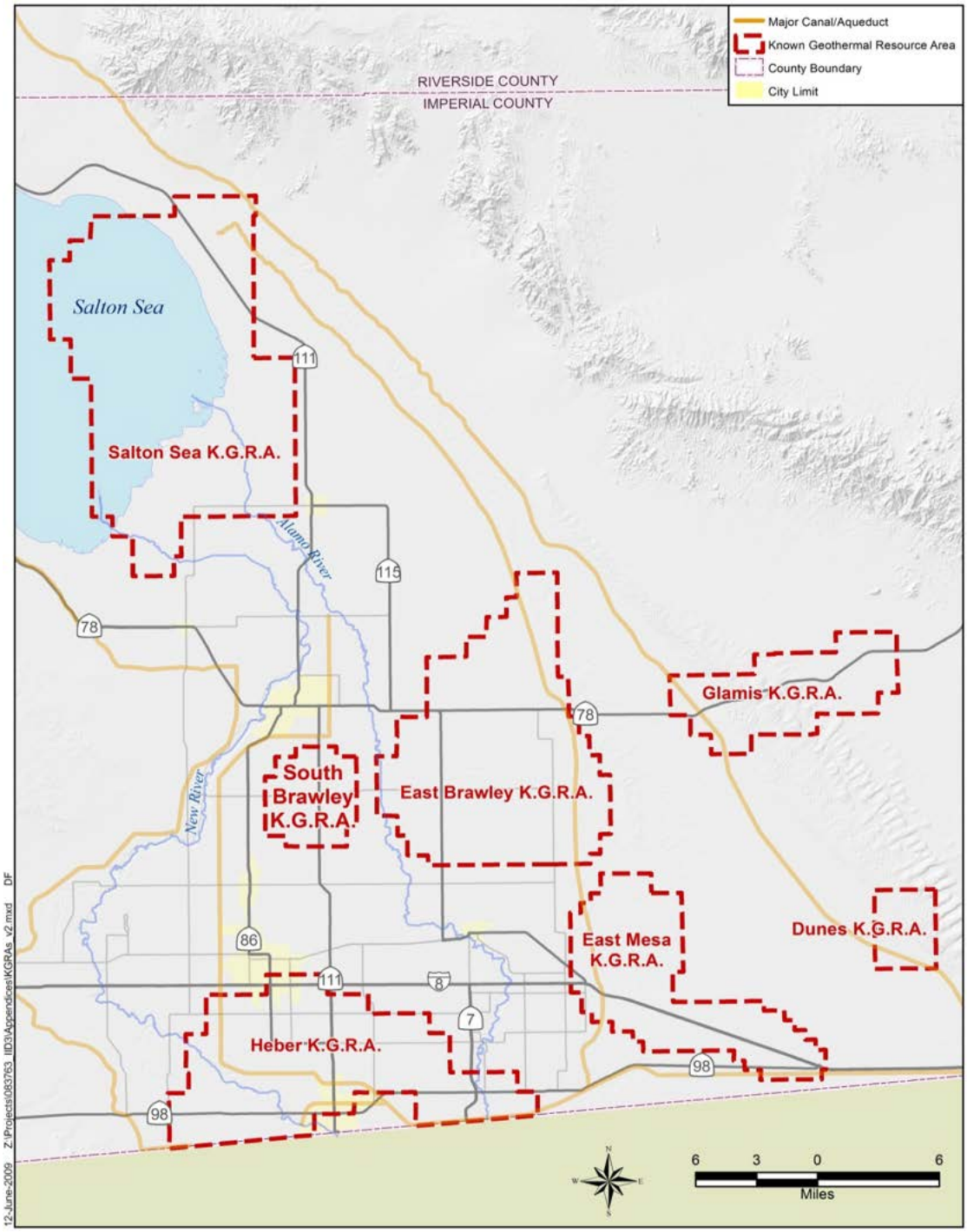


Figure B-12.Known Geothermal Resource Areas

B.9 AQUIFER HYDRAULIC CHARACTERISTICS

Aquifer hydraulic characteristics are present in terms of hydraulic conductivity, transmissivity and specific yield or storativity. The hydraulic conductivity is the rate at which water can move through a permeable medium and the units of Length/Time. Transmissivity is the ability of an aquifer to transmit water. The capacity of aquifer to transmit groundwater under pressure, expressed as a quantity of water, at the prevailing temperature, transmitted horizontally in a given period of time through a vertical strip of a given width of the fully saturated thickness of the aquifer, under a hydraulic gradient of one with unit of Length squared/Time or by multiplying these values by 7.48 to obtain units of gallons per day per foot. The transmissivity is equal to the hydraulic conductivity times the thickness of the aquifer. Porosity is the voids or open spaces in sediments that can be filled with water, frequently expressed ratio of the volume of open space to the total sediment volume, and is expressed as a percentage.

Storativity is the volume of water released from storage in an aquifer in a vertical column of one foot-square when the water surface in a confined aquifer (potentiometric surface) declines 1 foot. In an unconfined aquifer the storativity is approximately equal to specific yield.

Another common term used during evaluations of wells is specific capacity, which simply divides the gallons per minute (gpm) divided by the drawdown (static water level – pumping water level). Specific capacity units are gpm/foot (gpm/ft). The higher the number the better the well and indicates the sediments are more highly transmissive. The values range from less than 1 to 150 gpm/ft.

Several sources of data exist that provide information on the hydraulic parameters of aquifers in the Imperial IRWMP area. Areal distribution of aquifer transmissivity values derived from pumping tests, which typically provide high quality data, is shown on Figure B-12 (Tetra Tech, 1999). Unfortunately the data was not organized by aquifer. The highest aquifer transmisivities are found in the East and West Mesas, and the lowest are within the Imperial Valley.

Transmissivity values varied from 200 square feet/day in the Imperial Valley, to 100,000 square feet/day in East Mesa.

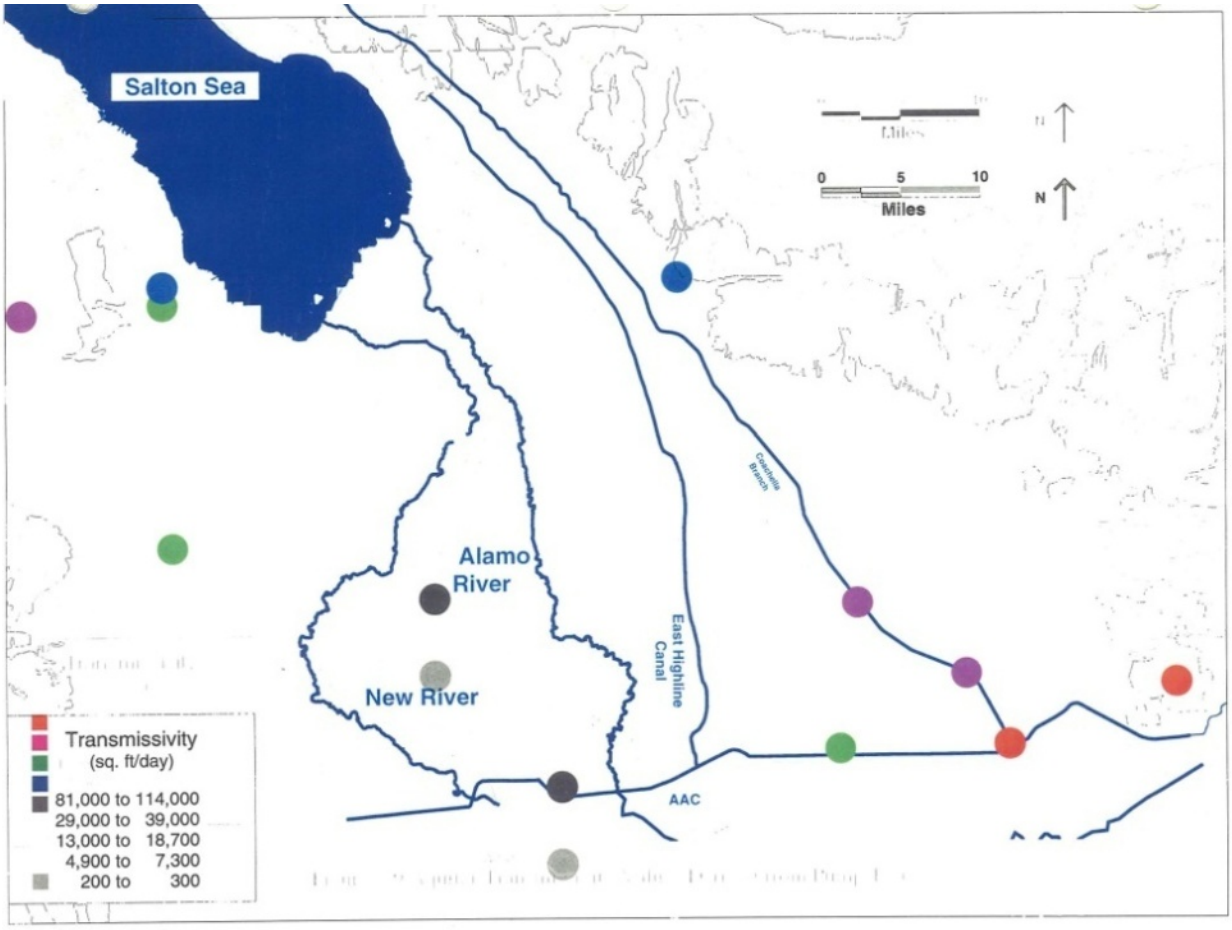


Figure B-14.Areal Distribution of Aquifer Transmissivities

Hydraulic conductivity values for the shallow and deeper aquifers were initially estimated using transmissivity data from the Imperial County Groundwater Model report (Montgomery Watson, 1995). Aquifer hydraulic conductivity values varied from a low value of 0.5 foot per day in the central irrigated area of the Basin where the previously described low conductivity lake bed sediments dominate, to a high value of 80 feet per day in East Mesa, where sediments are highly transmissive sands and gravels. Values for the Sand Hills, east of East Mesa, are 50 feet per day. Areas lacking data are assumed to have a hydraulic conductivity value of 30 feet per day for locations east of the pre-historic Lake Cahuilla shoreline (see Figure B-4) and 0.5 feet per day for locations west of the pre-historic Lake Cahuilla shoreline. Thus, based on the data presented; on average, new wells in the East Mesa would be expected to have higher yields than those in the West Mesa. Montgomery Watson (1995) presents a summary of hydraulic characteristics in various areas of the Imperial Valley. This is reproduced on Table B-2 below:

Table B-2. Summary of Hydraulic Characteristics

Area	Transmissivity (gpd/ft)	Transmissivity (sq ft/day)	Hydraulic Conductivity (ft/day)	Specific Yield
Imperial Valley	1,700 - 2,200	227 - 294	0.67 - 0.94	
East Mesa	140,000 - 50,000	18,717 - 113,636	32 - 1,337	
Sand Hills	62,000 - 590,000	8,289 - 78,887	9.7 - 401	
Ocotillo-Coyote Wells Groundwater Basin	10,000 - 82,000	1,336 - 10,963		0.04 - 0.15

Source: Montgomery Watson (1995)

Beyond those data cited above, Crandall (1983) provides data on estimated specific yield for the East Mesa aquifer. The range of values reported by Crandall varied from about 4 percent near the East Highline Canal, to 25 percent which occurs in areas along the Coachella Canal and AAC. The average specific yield for the East Mesa area was listed as 21 percent. Consistent with the geologic model described previously, specific yields decrease closer to the valley floor in proximity to the pre-historic Cahuilla Lake bed deposits. Higher values found elsewhere in the area are associated with coarser grained deposits of wind-blown origin.

Well logs obtained from the CDWR were used to evaluate depth specific aquifer characteristics. Aquifer characteristics were estimated from pumping test information contained on some of the logs; however, because the results are based on a single well the quality of the estimate is moderate. Table B-3 shows the aquifer characteristics by aquifer and generalized areas. The results show that East Brawley K.G.R.A. and East Mesa K.G.R.A. intermediate aquifers have the highest transmissivity and hydraulic conductivities. The aquifers in these locations will be able to supply greater quantities of water more sustainably than the Salton Sea or Heber K.G.R.A.s.

Table B-3. Aquifer Hydraulic Parameters

K.G.R.A.	Depth (feet)	Transmissivity (gpd/ft)	Hydraulic Conductivity (ft/day)	Storativity	TDS (mg/L)	Water Temprature (F)
Shallow Aquifer						
East Brawley [4]	80-300	10,000	13	0.01	1576 [7]	90
Heber [4]	80-300	10,000	13	0.01	3603 [7]	178
Salton Sea [4]	80-300	10,000	13	0.01	1500 [8]	94
Intermediate Aquifer						
East Brawley [6]	200-900 [2]	250,000	71	0.0001	1886 [7]	170-288 [11]
Heber [3,5]	300-1500	120,000	25	0.0001	1478 [9]	308
Salton Sea [3]	300-1500	60,000	25	0.0001	3200 [10]	94-145
East Mesa [1]	200-900 [2]	250,000	47	0.0001	1584 [7]	170

Notes:

LeRoy Crandall and Associates [1]

Assumed aquifer thickness form Cross -Sections A and B [2]

Hydraulic Conductivity assumed 25 ft/day and Transmissivity was backsolved [3]

Transmissivity Estimated from CDWR Paper 486-K [4]

Aquifer thickness averaged from CDWR well logs and CDWR Paper 486-K [5]

East side of Calipatria Fault and assumed sediments similar to that of East Mesa [6]

TDS is average for the well field area [7]

TDS only one measruement available in the area [8]

TDS Value is average from available vaues along Alamo River and East of Heber [9]

TDS Value from Niel at NCRS for Alamo River Flows [10]

From 1000 to 2000 feet depth [11]

Other data available for wells in the East Mesa include well yields and specific capacities. Reported well yields varied from 80 to 3,000 gpm, depending on depth and location. In general, yields in excess of 900 gpm were associated with depths of 200 feet or more. Specific capacity data reported for seven wells in the East Mesa, varied from 0.8 to 85 gpm/ft. The well with the highest specific capacity was located at the junction of the AAC and Coachella Canal. Specific capacities were highest to the east, and diminished to the west. Higher specific capacities were associated with wells deeper than 200 feet (Crandall, 1983).

Consistent with the overall geologic model for the Imperial IRWMP area, the highest transmissivities are associated with the East and West Mesas where aquifer formations are generally more homogenous and include a much higher proportion of coarse sands and gravels then the Imperial Valley floor, allowing groundwater to move at higher rates.

B.10 GROUNDWATER LEVELS AND MOVEMENT

The direction of groundwater movement is controlled primarily by contours of groundwater level elevation; the rate of groundwater movement is proportional to the gradient or slope of the groundwater table. Groundwater levels and flow have changed with lining of the canals; therefore, two temporal sets of water level data are presented: one for 1960 representing conditions with recharge from the canals and one for 1993 after the southerly portions of the Coachella Canal was lined. Lining of portions of the AAC, generally about six miles east of the East Highline Canal to about five miles east of the Coachella Canal was not started until 2006 so neither set of maps reflect the reduction of seepage from the AAC. A portion of the AAC still contributes recharge to East Mesa. Additional details groundwater contour maps are also provided for both the East and West Mesas.

B.10.1 Imperial IRWMP Area Historic Groundwater Levels (1960 Data)

Published water level contours are available for 1965 for Imperial IRWMP area (Loeltz et al., 1975) and 1960 for the East Mesa (USBR, 1994). A composite water level contour map of the area based on the 1960 and 1965 data is presented on Figure B-13. The dashed water level contours east of the Salton Sea area reflect limited data for this area.

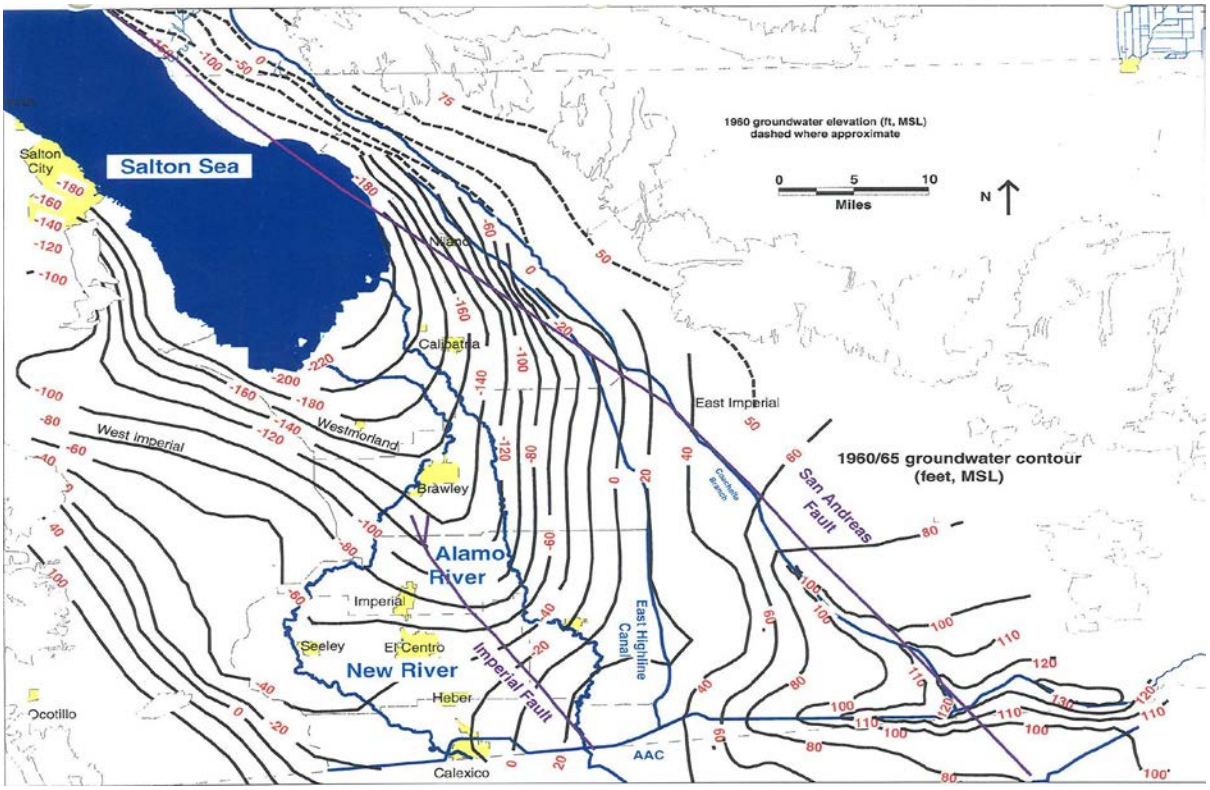


Figure B-15.Groundwater Contour Map, 1960/65 Data

The groundwater contours show a broad groundwater mound in the East Mesa area, from east of the San Andreas Fault and continuing to the East Highline Canal. This mound is associated with seepage recharge from unlined portions of the AAC beginning with its construction in the 1940s. The groundwater mound also extends northwest along the unlined Coachella Canal due to seepage recharge. Between the canals, the direction of movement is west-northwestward; but south of the AAC, the flow direction is into Mexico. East of the Coachella Canal, the flow direction is northward for the first 20 miles, but further north, gradually swings to the west. East of the San Andreas Fault zone, groundwater reportedly flows north and east toward the Colorado River.

Groundwater moves from the recharge areas east and west of Imperial Valley, toward the axis of the valley, and converges upon the New and Alamo Rivers respectively, which discharge to the Salton Sea. The overall direction of flow of groundwater in the area based on the 1960 data is presented on Figure B-14. Historically, artesian groundwater conditions have been quite common between the East Highline Canal and the Alamo River, but artesian conditions do not extend west of the Alamo River. This suggests that the Alamo River may be a more significant source of discharge from the upper aquifer than the New River in the central valley area.

As illustrated in Figure B-14, flow directions are westward along the AAC between the Coachella Canal and the Alamo River, then northwest to north between the Alamo and New River. Flow direction below the AAC is to the south into Mexico east of the Coachella Canal, but then turns southwest between the Coachella Canal and the East Highline Canal. Apparent flow direction is to the northwest in western Imperial Valley near the West Mesa and to the southwest east of the Salton Sea, as flow from both these areas converges towards the Salton Sea. Flow direction in East Mesa is west to northwest, although it was also locally influenced by the presence of the groundwater mound under the former unlined Coachella Canal. Groundwater flow east of the San Andreas Fault system is to the north.

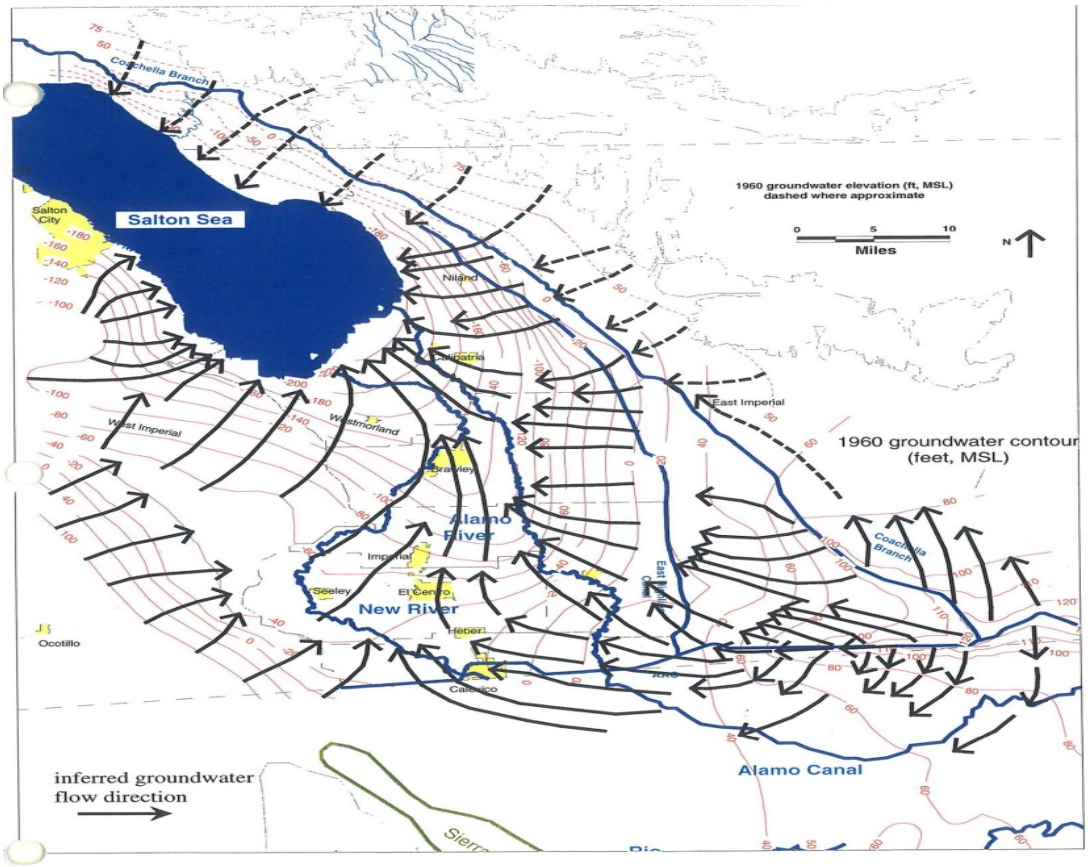


Figure B-16.Regional Groundwater Flow Map, 1960

Groundwater levels adjacent to the canal in the East Mesa area have varied significantly over time, primarily in response to seepage of imported Colorado River water. These canals have had the most significant impact on water levels in the study area. In the irrigated Imperial Valley groundwater levels have remained essentially the same for many decades, due to the existence of the tile drain network and the New and Alamo Rivers, which act as regional drains and control groundwater levels.

Many East Mesa wells have seasonal trends in the water levels, with highest water levels in March and the lowest water levels in September. The seasonal trends appear strongest near the AAC below Drop 1, although they can also be observed in East Mesa. These seasonal trends are thought to be associated with variations in canal leakage prior to lining of the canal.

B.10.2 Imperial IRWMP Area Recent Groundwater Levels (1993 Data)

Groundwater levels for the Imperial IRWMP area, based on 1993 data, are shown on Figure B-15. The 1993 time period represents the most recent period with comprehensive data of the entire area, including the Mexicali Valley, and it also is a time period that should accurately represent present day water levels in the East Mesa and Imperial Valley (Tetra Tech, 1999). The decline in the water table in East Mesa, due to the lining of the first 49 miles of the Coachella Canal, began in 1980 and stabilized in the early 1990s. A similar affect should be expected in the southern margin of East Mesa upon completion of the lining for the AAC in 2010.

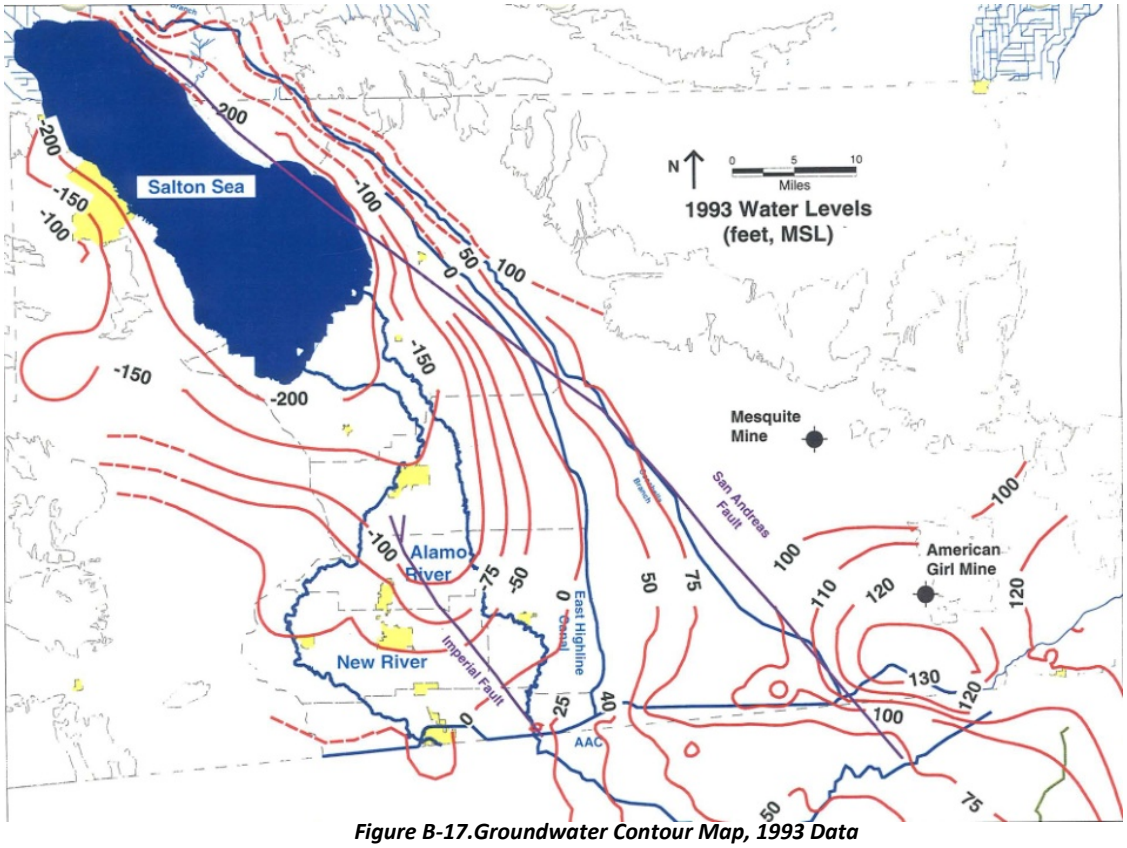


Figure B-17.Groundwater Contour Map, 1993 Data

As can be seen on Figure B-15, groundwater contours are generally unchanged from the 1960s data in the Imperial Valley, the area east of the Salton Sea, Mexicali Valley, and the East Mesa area adjacent to the AAC. However, the water table declined significantly along the first 49 miles of the Coachella Canal due to its 1979 lining. This has resulted in a more northerly flow direction into East Mesa near Drop 1 of the AAC. In general, the water levels along the AAC are similar to the 1960 conditions because AAC seepage was not controlled by water level elevations near Drop 1 on the AAC. It is expected further decreases in groundwater levels will occur after the completion of addition lining of the ACC in 2010.

B.10.3 West Mesa

Groundwater levels beneath West Mesa, as show on Figure B-14, show the groundwater flow direction beneath West Mesa is from the southwest to the northeast toward the Salton Sea.

Groundwater levels in the Ocotillo-Coyote Wells Groundwater Basin west of the West Mesa area are measured by the USGS. The most recent (1995) water level elevation data are shown on the groundwater contour map in Figure B-16. This map shows the groundwater slopes (and therefore moves) southwesterly through the Ocotillo-Coyote Wells Groundwater Basin, from areas of recharge in the Coyote and Jacumba Mountains, to areas of discharge in Mexico and across the Elsinore/Laguna Salada Faults. The data also reveal the difference in groundwater elevations from one side to the other of the Elsinore/Laguna Salada Faults, reflect the fact that these faults are an impediment to the movement of groundwater into West Mesa.

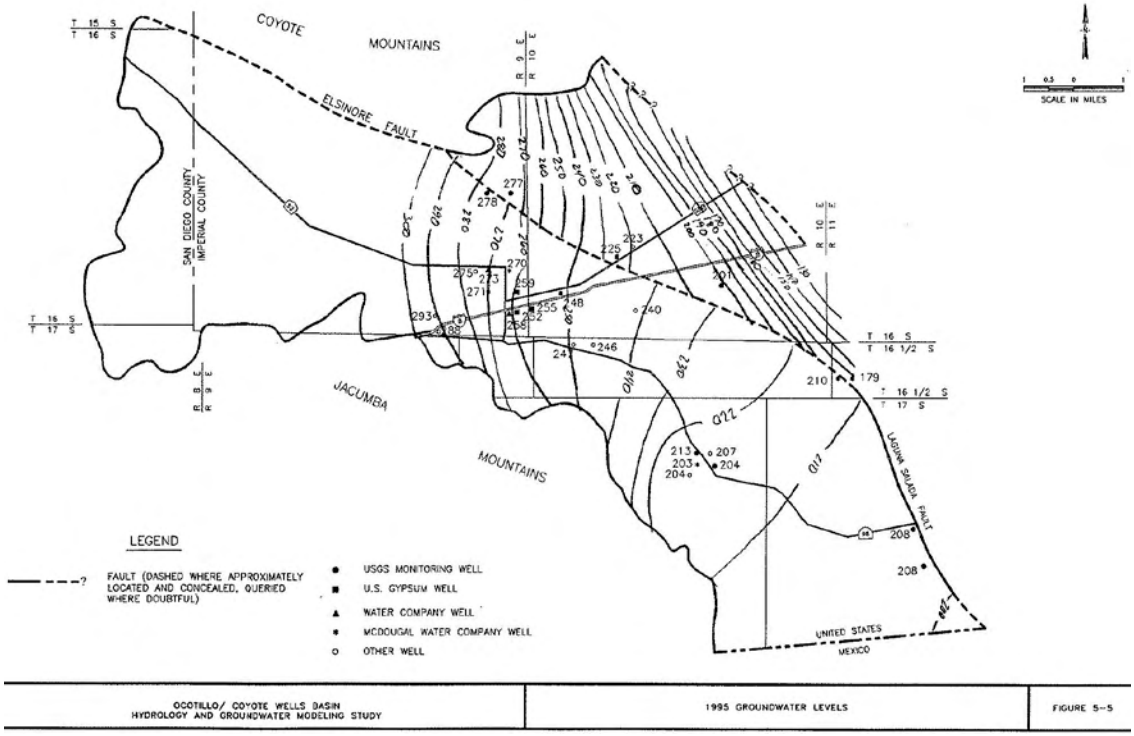


Figure B-18.West Mesa Groundwater Contour Map, 1995 Data

B.10.4 East Mesa

As previously described, the East Mesa includes the roughly triangular area southwest of the San Andreas Fault, north of the Mexican border, and east of the East Highline canal (shoreline of ancient Lake Cahuilla) as shown on Figure B-4. Recharge to the East Mesa is almost entirely a result of historic seepage from unlined portions of the AAC and Coachella Canal. The movement of groundwater in areas of the East Mesa is, therefore, reflective of these sources of recharge. Little data are available on the existence and continuity of clayey lake beds and aquitards in the East Mesa; and, as described previously, groundwater occurs under unconfined conditions in most areas. Figure B-17 presents a groundwater contour map of the East Mesa based on 1982 data, shortly after the lining of the Coachella Canal in 1979 but before ACC lining project in 2006 (USBR, 1988). As shown in Figure B-17 groundwater in the southern part of East Mesa, near the ACC, generally flows north-northwesterly. In the more northern portions of East Mesa flows are in a more westerly direction toward the East Highline Canal and the Imperial Valley.

As previously mentioned, several significant faults in the area alter and restrict the flow of groundwater flow from east to west, into the Imperial Valley. These are, from west to east, the Brawley, Calipatria, San Andreas (main branch), and Algodones/Sand Hills Faults. Crandall (1983) reports that water levels are offset across both the Brawley and Calipatria faults, indicating they may be partial barriers to the flow of groundwater from East Mesa into the Imperial Valley. To the east, the Sand Hills (also known as the Algodones Dunes) lie between the San Andreas and Algodones Faults. This area may provide a favorable structural zone in which groundwater recharge and recovery activities can be considered.

B.11 GROUNDWATER VELOCITY

Data was reviewed that presents approximate groundwater flow rates, based on the slope of the water table, the aquifer hydraulic conductivity, and the aquifer effective porosity. Groundwater velocity in the permeable East Mesa sands and gravels is estimated to be 450 feet per year using a gradient of 0.001 foot per foot (ft/ft), a hydraulic conductivity of 250 feet per day and an effective porosity of 20 percent. In contrast, groundwater velocity in the semi-permeable pre-historic Lake Cahuilla sediments beneath the Imperial Valley is estimated to be only 10 feet per year using a gradient of 0.004 ft/ft, a hydraulic conductivity of 0.5 foot per day, and an effective porosity of 8 percent. In addition to the major differences in groundwater flow rates between the East Mesa and the Imperial Valley, smaller groundwater flow rate variations occur due to variability in the gradient and hydraulic conductivity within each area (Bureau of Reclamation, 1987; Tetra Tech, 1999; Crandall, 1983).

B.12 RECOVERY AND ARTIFICIAL RECHARGE POTENTIAL

The potential for artificial recharge and recovery varies greatly between the Imperial Valley, West and East Mesas due to the permeability of the sediments and the ability to convey water to the recharge areas. A discussion for each area is provided below.

B.12.1 Imperial Valley

The Imperial Valley has limited potential for conjunctive use or banking opportunities. The Imperial Valley is underlain by at least two regional aquifers. The upper aquifer is about 200 feet thick and may contain about 0.8 million AF poor quality of water (see Figure B-8). The aquifers for the most part are relatively thin sand beds. Groundwater levels are near ground surface (10 to 15 bgs) indicating the aquifer is full. Recovery of water could be by wells or drains, but they are hampered low transmissive sediments, poor and highly variable quality water as shown on B-8, and other impacts such as land subsidence.

Since irrigation began in the valley, recharge to the aquifer is from percolation of applied water not captured by the drain system; therefore, no recharge facilities would need to be constructed.

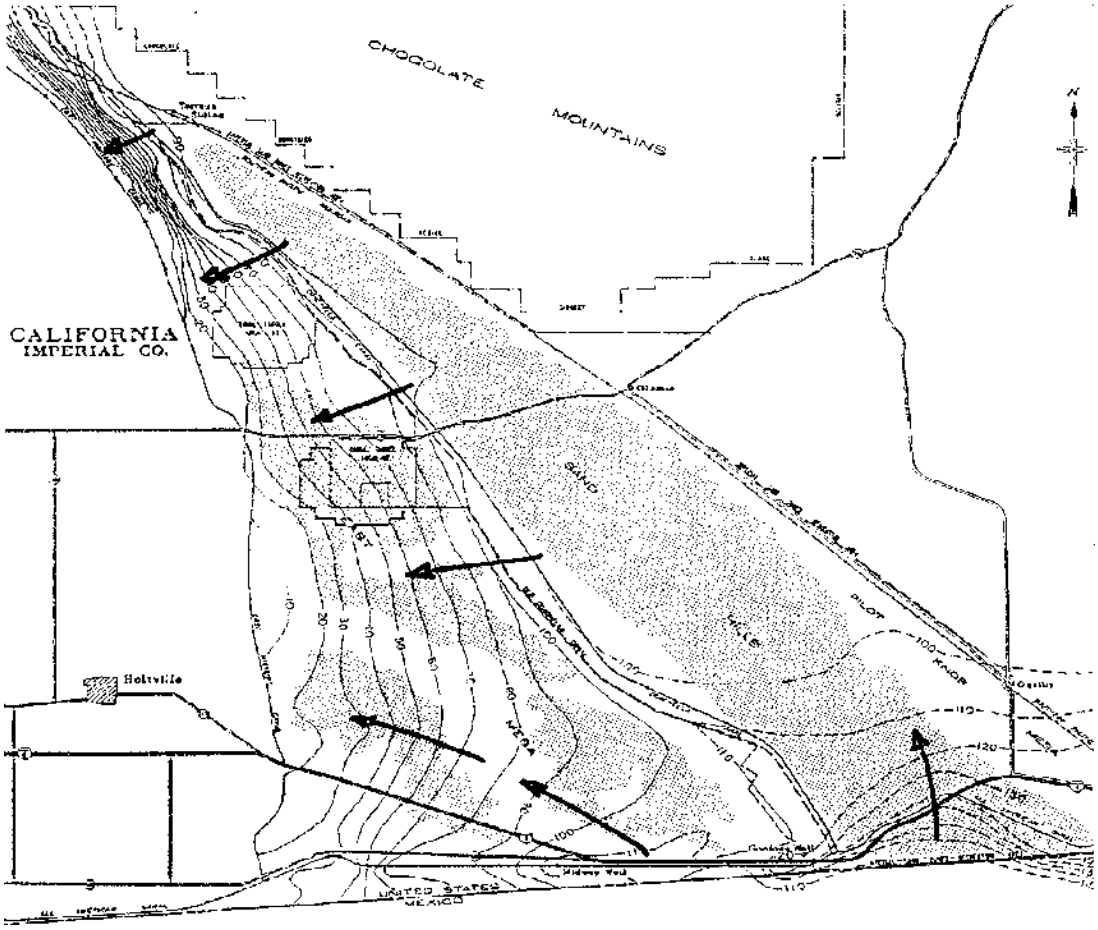


Figure B-19.East Mesa Groundwater Contour Map, 1982 Data

The intermediate aquifer, beneath the Imperial Valley is about 600 feet thick and may contain about 24 million AF of water. There are relatively thick sand beds which could be favorable for developing high capacity wells. The salinity of the groundwater ranges from about 700 to 3,330 mg/L, which makes treatment of the water feasible. The full extent of the aquifer is unknown and its hydraulic interconnection to the upper aquifer is poorly understood. Geologic information is insufficient to ascertain the source area for recharge to the intermediate aquifer. It could be from the overlying upper aquifer to the south in Mexico, or to from the East Mesa area west of the San Andreas Fault. If recharge to the intermediate aquifer comes from the East Mesa area and the water can cross the Calipatria Fault, which is at least a partial barrier to groundwater flow, then it is possible that an artificial recharge project through unlined portions of the old Coachella Canal could be an effective conjunctive use project for the intermediate aquifer. Because of its large storage and areal extent, relatively consistent water quality, and apparent ability to convey water to high capacity wells, the intermediate aquifer could possibly be a conjunctive use target. However, with the high degree of uncertainty in the recharge, this aquifer should not be considered for a conjunctive use project.

B.12.2 West Mesa

Constraints to groundwater banking activities in the West Mesa include the potential conflicts with the U.S. Gypsum operation, sole source aquifer designation for Ocotillo-Coyote Wells Groundwater Basin and maintaining the recharged water for use by IID. However, recharge water in the West Mesa is a possibility. The mountain front areas along the west side of mesa include portions of several small groundwater basins identified by CDWR. Most of the basins in this area include a small number of highly productive wells, reflective of the more permeable aquifers that underlie this area. Aquifer materials and hydraulic characteristics are highly favorable for recharge of water to the subsurface, and subsequent recovery. Water quality is generally good, and might not require treatment prior to use. Areas that warrant further investigation are near the Carrizo Wash or Palm Canyon.

B.12.3 East Mesa

The East Mesa area is the most favorable for an aquifer storage and recovery operation. The concept of storing and recovering Colorado River water during IID underruns in the East Mesa and has been the subject of investigation by both IID and the USBR since the mid-1980s.

In 1989, a recharge study using a portion of the old unlined Coachella Canal just south of the Glamis K.G.R.A and west of the San Andreas Fault, diverted an average of 80 cfs (17,000 AF) of water into the canal for 3.5 months proving the sediments are favorable for a recharge facility (USBR, 1992). The recharged water raised the water table by about 15 feet near the canal, but only raised the piezometric head in the semi-confined intermediate aquifer by about 3 feet. USBR postulated the piezometric head in the intermediate aquifer was raised due to the overburden of the recharged mound of water in the shallow aquifer applying great pressure to the intermediate aquifer. Most likely the confining layer separating the two aquifers is not a significant barrier to groundwater flow and that by pumping from the intermediate aquifer could induce recharged water to enter the

intermediate aquifer where the aquifers have a higher transmissive capacity and potential for developing high yielding wells. Additional testing is needed.

The upper and intermediate aquifers beneath East Mesa are highly permeable. Groundwater in storage beneath the East Mesa west of the San Andreas fault in just the upper aquifer is estimated to be about 1.5 million AF. The aquifers are generally full and may need to be pumped to create storage for recharged water. The aquifers are favorable for development of high capacity wells, and water is generally of good quality, with TDS ranging from 500 to 1,000 mg/L, (see Figure B-8 and Figure B-10).

B.13 Conjunctive Use Facility Conceptual Designs

This section presents conceptual designs for using groundwater as the source of supply and groundwater recharge facilities.

New water supply will be needed to support future development of geothermal plants in each of the K.G.R.A.s and other Municipal, Commercial and Industrial (MCI) development. The water could also be used by agriculture to augment supplies when a potential annual overrun is projected.

Development of groundwater supply wells and well fields, was evaluated as a source to supply water to each of the K.G.R.A.s. Imperial Valley groundwater quality is generally of moderate to poor quality in the aquifers and would require treatment. The shallow aquifer has the most variable concentrations ranging from 800 to over 10,000 mg/L. The intermediate aquifer has the most consistent salt concentrations ranging from about 800 to 2,220 mg/L. Generally better quality water is present beneath East Mesa due to historic recharge from the unlined canals. Desalination plants would be required and the brine associated with the treatment will require disposal.

Extraction of groundwater in the desert environment would eventually deplete the resource if the aquifers were not recharged. Selection of the well pumping capacity and the well field locations were based on the ability to recharge the aquifers either from deep percolation of agricultural applied water or by replenishing the water through groundwater recharge. Conceptual well fields were not located between closely spaced parallel faults due to their potential to be barriers to groundwater flow, limited storage capacity, and the potential lack of recharge that could lead to subsidence and ground fissuring. The well locations were further constrained by geologic hazards and other design constraints.

B.14 Geologic Hazards and Design Constraints

The Imperial region lies in one of the most seismically active areas in the United States. Several geologic hazards face the region including earthquakes, liquefaction, sieches, flooding due to breaching of canals, and subsidence.

B.14.1 Earthquakes

Near the K.G.R.A.s, major active and potentially active faults trend in a northwestern direction. Figure B-18 shows the location of these faults. The San Andreas and the Imperial faults are active. The Brawly and Calipatria Faults are classified as potentially active according to the California Geological Survey. Near the active and potentially active faults the potential for surface displacement and cracking is high.

The potential for shaking is high near the K.G.R.A.s. Facilities should be designed to within the appropriate level of shaking and to the extent possible be set back as far as possible from the faults. Where distribution pipelines cross faults they will be subject to shearing.

B.15 LIQUEFACTION

Liquefaction may occur during an earthquake where saturated soils are shaken and the geologic media become buoyant in the groundwater and structures can sink or sag due to the decrease in the soil's structural integrity. Potential for liquefaction is low beneath East Mesa, but increases to the west where the potential is moderate to high, due to irrigation that may cause perched water above the pre-historic Lake Cahuilla clayey lakebed deposits.

Groundwater pumping could locally decrease the potential for liquefaction by lowering groundwater levels.

B.16 SIECHES

When an earthquake occurs in a location near a large body of water a sieche can occur. A sieche is a large wave in an inland body of water that can cause flooding and damage nearby structures. A strong earthquake could create a sieche from either the Salton Sea or in the canals. Although sieches have not been reported, the potential is moderate to high.

B.17 FLOODING

Imperial Valley and even East Mesa are at risk for flooding were canals to be sheared and offset due to fault activity. A significant surface rupture of one or multiple canals could flood portions of the Imperial Valley. Potential for flooding is moderate to high. Facilities located down gradient of the major canals should be designed to withstand flooding though elevation of structures or inclusion of diversion measures to redirect water away from the facilities.

B.18 SUBSIDENCE

Two inches of naturally occurring subsidence annually are centered at the middle of the Salton Sea. The two inches of subsidence decreases radially outward from the Salton Sea. Near the Mexican border the natural subsidence is essentially zero (Imperial County, 2006).

Imperial Valley has a dense irrigation network of canals and laterals that supply water throughout the valley. This network relies on canal grades to gravity feed the water throughout the system. Subsidence can cause the ground surface to sink or sag damaging or changing the grade on infrastructure.

Subsidence may also be induced by removing more water from the aquifer than can be replaced naturally or by injection. Imperial Valley's geothermal wells remove steam and water from below the deep aquifer. In some cases water is injected back into the zones where water was removed and aid to mitigate potential subsidence. Subsidence has been detected in the Salton Sea K.G.R.A.

Potential for subsidence as a result of groundwater pumping is high in the Imperial Valley and low to moderate in the East Mesa area. Geotechnical investigations will be required for foundation designs to withstand settlement due to subsidence and how potential subsidence would affect existing infrastructure, canals, drains, and bridges. Pipelines should be constructed with flexible materials or incorporate expansion joints.

B.19 CORROSIVE SOILS

Data was gathered on 28 soil types that are common in the Imperial Valley and East Mesa showed that some soil types can be corrosive to steel and concrete. The risk of corrosion to both concrete and steel were reported as either low, moderate, or high (NRCS *http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx*). Of the 28 soils from the soil survey all 28 had a high rating for being corrosive to steel. Of the 28 soil types, 13 were considered low, 13 were considered moderate, 1 was considered high, and 1 was not rated for corrosiveness to concrete.

To withstand the corrosive soils, pipelines should be constructed with polyvinylchloride or high density polyethylene. Depending on the location, special mixtures of concrete may be required for foundations.

B.20 COLORADO RIVER EFFECTS

The Colorado River is located about 50 miles to the east of the Imperial IRWMP area. An accounting surface method was developed in the 1990s by the U.S. Geologic Survey, in corporation with the Bureau of Reclamation to identify wells outside of the flood plain of the lower Colorado River that yield water that will be replaced by water from the river. This method was needed to identify which wells require an entitlement for diversion of water from the Colorado River and need to be included in accounting for consumptive use of Colorado River water as outlined in the Consolidated Decree of the

United States Supreme Court in Arizona v. California. The method is based on the concept of a river aquifer and an accounting surface within the river aquifer. The study area includes the valley adjacent to the lower Colorado River and parts of some adjacent valleys in Arizona, California, Nevada, and Utah and extends from the east end of Lake Mead south to the southerly international boundary with Mexico. Contours for the original accounting surface were hand drawn based on the shape of the aquifer, water-surface elevations in the Colorado River and drainage ditches, and hydrologic judgment.

This method for determining well impacts to the Colorado River was published in the Federal Register for the Department of the Interior on July 16, 2008, but was not formalized. It indicated that if static water levels in wells are equal to or the elevation of water in the Colorado River it is assumed that water from the wells is coming from Colorado River. The elevations of the river were projected into areas surrounding the river to create the accounting surface. The accounting surface extended into portions of East Mesa (Scientific Investigations Report 2008-5113, USGS 2008).

In 2008, the USGS published another method for assessing whether wells deplete groundwater that would otherwise recharge the Colorado River aquifers. They developed a superposition model that simulates the percentage of water depleted from the river (Scientific Investigations Report 2008-5189, USGS 2008). The assumption is that when a well is initially pumped, virtually all the water comes from groundwater storage; but over time, as the cone of depression grows, the percentage of water from the river or other recharge sources increases. The southeastern portion of the East Mesa has been designated as having a potential to deplete water in the Colorado River as shown on Figure B-18 as the Depletion Model Area. The Dunes K.G.R.A. is adjacent to and overlaps the proposed depletion area.

B.21 ENDANGERED SPECIES

Endangered and threatened species are present in the Region. The endangered species habitat areas were mapped to the extent possible to highlight areas that were excluded as desalination plant and well field locations. These locations are illustrated on Figure B-18. Most of the Glamis and Dunes K.G.R.A.s are occupied by endangered species.

B.22 SEEPAGE RECOVERY SYSTEM

IID has installed a Seepage Recovery (SR) system to collect seepage from the East Highline Canal and the ACC as part of the system efficiency conversation. Water collected by the SR system interceptors is protected. About 13,000 AFY has been recovered from the East Highline Canal SR system and about 25,000 AFY has been recovered from the ACC SR system. Well fields for the desalination plants should be designed to minimize drawdown along the SR system so they will not collect water that would have been otherwise collected through SR system.

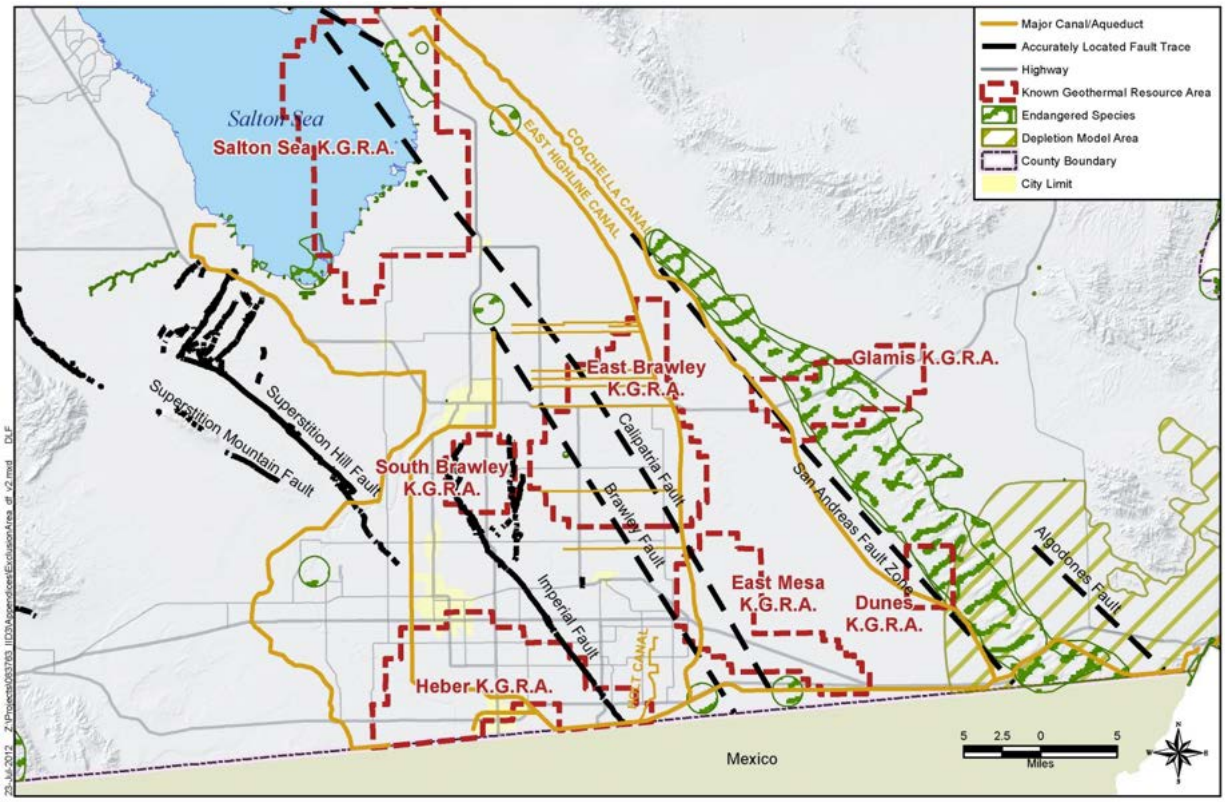


Figure B-20.Exclusion Zones

B.23 WELL FIELD CONCEPTUAL DESIGNS

Preliminary designs for well fields were developed to supply 5,000 AFY, 25,000 AFY, and 50,000 AFY of groundwater to the East Brawley, East Mesa, Heber, and Salton Sea K.G.R.A.s. Attachment A contains conceptual sketches of the well fields along with the raw and finished water distribution systems. Because the water will need to be treated, the amount of groundwater pumped had to be increased as the treatment plants will operate with 75 percent efficiency. Using the 75 percent efficiency, the wells will need to produce 6,600 AFY, 33,300 AFY, and 66,600 AFY.

Aquifer characteristics listed in Table B-3 for each K.G.R.A. were used to determine the potential well pumping rate over the 30 year life of the project. A Theis analysis of the potential well fields was conducted assuming the wells are arranged in a grid shape. Spacing between wells was initially estimated to limit well interference to about 10 feet. Analysis predicted the average drawdown expected due to pumping of the well field. These estimations were used to determine if the drawdown would exceed the thickness of the aquifers or in the case of the intermediate aquifer to maintain groundwater levels above the confining bed. The number of wells and their pumping rates were then adjusted to select the optimum number of wells. The number of wells and their production rates for each proposed well field by K.G.R.A. are summarized in Table B-4.

Table B-4. Wells Required for Each Well Field Based on K.G.R.A.s

K.G.R.A.	Plant Capacity (AFY)	Aquifer	Well Depth (feet)	Tranmissivity (gpd/ft)	Hydraulic Conductivity (ft/day)	75% Efficency Water Needed (AFY)	GPM per Year	Pumping Rate (gpm)	Number of Wells
East Brawley	**5,000**	Shallow	80-300	10,000	13	6,667	4,133	100	41
	25,000	Shallow	80-300	10,000	13	33,333	20,665	100	207
	50,000	Shallow	80-300	10,000	13	66,667	41,331	100	413
	5,000	Intermediate	200-900	250,000	71	6,667	4,133	2000	2
	25,000	Intermediate	200-900	250,000	71	33,333	20,665	2000	11
	50,000	Intermediate	200-900	250,000	71	66,667	41,331	2000	21
Heber	**5,000**	Shallow	80-300	10,000	13	6,667	4,133	100	41
	25,000	Shallow	80-300	10,000	13	33,333	20,665	100	207
	50,000	Shallow	80-300	10,000	13	66,667	41,331	100	413
	5,000	Intermediate	300-1500	120,000	25	6,667	4,133	350	12
	25,000	Intermediate	300-1500	120,000	25	33,333	20,665	350	59
	50,000	Intermediate	300-1500	120,000	25	66,667	41,331	350	118
Salton Sea	**5,000**	Shallow	80-300	10,000	13	6,667	4,133	200	21
	25,000	Shallow	80-300	10,000	13	33,333	20,665	200	103
	50,000	Shallow	80-300	10,000	13	66,667	41,331	200	207
	5,000	Intermediate	300-1500	60,000	25	6,667	4,133	350	12
	25,000	Intermediate	300-1500	60,000	25	33,333	20,665	350	59
	50,000	Intermediate	300-1500	60,000	25	66,667	41,331	350	118
East Mesa	**5,000**	Intermediate	200-900	250,000	47	6,667	4,133	2000	2
	25,000	Intermediate	200-900	250,000	47	33,333	20,665	2000	10
	50,000	Intermediate	200-900	250,000	47	66,667	41,331	2000	21

Note: Pumping Rate assumes pumping 365 per year for 24 hours/day

The aquifers beneath the K.G.R.A.s have varying salt concentrations and groundwater temperatures. Table B-3 summarizes aquifer quality and temperatures associated by aquifer and each K.G.R.A.

The aquifers likely have a broad regional extent and may extend to the valley edges. However, groundwater flow may be blocked by faults, which would limit recharge. The Calipatria and Brawley Faults are considered at least partial barriers to flow on the east side of the Imperial Valley. Well fields for the East Brawley, East Mesa, and Salton Sea K.G.R.A.s were positioned east of these faults so that water recharged near the Coachella Canal would reach the well fields.

The Dunes and Glamis K.G.R.A.s were not evaluated, because most of their areas are occupied by endangered species and their proximity to the proposed Colorado River depletion surface.

B.24 SOUTH BRAWLEY WELL FIELD

Developing groundwater as a source of supply for the South Brawley K.G.R.A. (including the Keystone development area) was considered and then abandoned due to the area being located between two branches of the Imperial Fault. Where faults are closely spaced, they may create small compartments that have limited recharge and can be easily dewatered, which could result in subsidence and ground fissuring. Therefore, a well field within the K.G.R.A. was not planned. Groundwater supply to this area could be from a well field in the East Brawley K.G.R.A., as described below. Water could be conveyed west to the South Brawley K.G.R.A. and the Keystone development area using either pipelines or existing IID canal infrastructure; however, not in high periods of agricultural demands. Attachment A, Figures A-1 through A-6, contains conceptual well field layouts for feasible alternatives in the South Brawley/Keystone areas.

B.25 EAST BRAWLEY WELL FIELD

Conceptual well field designs were developed to supply water to the East Brawley K.G.R.A. These designs would also apply to serve the South Brawley K.G.R.A., but the water would have to be conveyed to that demand area. Well field designs were prepared to produce 5,000

AFY, 25,000 AFY, and 50,000 AFY after treatment as shown in Figures A-7 through A-10. The well fields were located east of the Calipatria Fault to receive recharge from percolation basins potentially located in the old unlined Coachella Canal, on private land not managed by Bureau of Land Management (BLM). The K.G.R.A. generally overlies lakebed deposits which pinches out to the east where the recharge facilities are planned. Therefore recharge facilities located in the old unlined Coachella Canal could replenish water in either the shallow or intermediate aquifers.

Both the shallow and intermediate aquifers were evaluated for development of the well field. The characteristics for each aquifer are presented in Table B-3. The intermediate aquifer is more favorable for development, because it is thicker and has a corresponding higher capacity to transmit water than the shallow aquifer. Flow rates from each well were selected to prevent dewatering of the aquifer. Estimated pumping rates per well for the shallow aquifer is 100 gpm and 2,000 gpm for the intermediate aquifer.

Table B-4 lists the number of wells required to provide 5,000 AFY, 25,000 AFY, and 50,000 AFY. Development of the shallow aquifer is not feasible because between 40 and 400 wells would have to be constructed in comparison to the intermediate aquifer which will only require construction of 2 to 21 wells. Attachment A, Figures A-7 and A-8, contains conceptual well field layouts for feasible alternatives in the East Brawley K.G.R.A.

Two pumping wells could be constructed to supply 5,000 AFY of water from the intermediate aquifer. The pumping would reduce the water surface elevation by about 35 feet over the 30 year project lifespan.

Ten wells would be required to produce 25,000 AFY from the intermediate aquifer. The water surface would be lowered by an average of 92 feet over the 30-year project lifespan.

Twenty-one wells would be needed to produce 50,000 AFY. The average groundwater surface would decline by about 172 feet in the center of the well field over the 30-year life of the project. The drawdown would diminish away from the well field.

Conjunctively managing the groundwater levels through recharge would reduce the drawdown of the aquifer. Management of the groundwater could lower the groundwater surface in the shallow aquifer, depending upon the interconnectedness of the shallow aquifer to the intermediate aquifer. The insert on Figure A-8 shows where potential recharge facilities on the old unlined Coachella Canal could be located to conjunctively manage surface water and groundwater and create a water bank. Groundwater levels could be lowered below the root zone which could benefit local agricultural users and would reduce the potential for liquefaction. Management of recharge and pumping would be required to reduce the potential for subsidence associated with pumping.

B.26 East Mesa Well Field

Due to the land limitations and the lack of demand in the area, a 5,000 AFY plant is recommended for this area. Well fields were designed for the East Mesa K.G.R.A. for both the shallow and intermediate aquifers. Most of the East Mesa K.G.R.A. is BLM-managed land. The small portion of the K.G.R.A. that does not belong to BLM is between the Calipatria and Brawley Faults and was not considered because they are partial barriers to groundwater flow and could limit recharge of the aquifers. The 5,000 AFY well field could be positioned on existing geothermal plant leases whereas the 25,000 AFY and 50,000 AFY well fields would need to be on land acquired from BLM, which could require lengthy negotiations.

Aquifer characteristics for the East Mesa well field are assumed to be similar to the East Brawley well field; therefore, the number of wells is similar. Based on the analysis for the East Brawley K.G.R.A., the shallow aquifer was not considered for development. Table B-4 provides information for the number of wells needed, their depths and their production capacities. For the 5,000 AFY well field only two wells would be needed. Locally the wells would lower the water surface by about 35 feet over the 30-year project lifespan. If the well field is to produce 25,000 AFY, 10 pumping wells would need to be constructed. The water surface locally would be lowered an average of 92 feet over the 30-year project lifespan. For a 50,000 AFY well field, 21 wells would be needed. The average groundwater surface would decline by about 172 feet in the center of the well field over the 30-year life of the project. The drawdown would diminish away from the well field. Attachment A, Figures A- 11 to A-13, contains conceptual well field layouts for feasible alternatives in the East Mesa K.G.R.A.

Pumping effects could be offset by recharge in the unlined old Coachella Canal recharging potentially both the shallow and intermediate aquifers. Management of the recharge and pumping would be needed to reduce the potential for subsidence associated pumping.

B.27 SALTON SEA WELL FIELD

The well field designs were prepared to produce after treatment, 5,000 AFY, 25,000 AFY, and 50,000 AFY from the shallow and intermediate aquifers. Well fields were located east of the Calipatria Fault to be able to receive recharge from percolation basins potentially located in the unlined old Coachella Canal. It is estimated that the shallow aquifer is from 80 feet bgs to 300 feet bgs with about 100 feet of the sediments consisting of sandy sediments. Although the intermediate aquifer is located between 300 and 1,500 feet, it only likely contains about 300 feet of sandy sediments which can readily convey water to a well. Because of the thinner sequence of coarse grained sediments, the transmissivity is lower than in the East Brawley K.G.R.A.

Well field designs showed the number of wells required would range from 12 to over 200 wells. Table B-4 (page 40) lists the number of wells by aquifer and production capacity. Well fields for producing about 5,000 AFY could be developed by using either the shallow or intermediate aquifers. Production of 25,000 AFY and 50,000 AFY from wells is not reasonable.

The shallow aquifer could produce 5,000 AFY with 21 wells pumping at a rate of 200 gpm each. Over the 30-year project lifespan it is estimated that there will be about an average of 190 feet of drawdown which will not be below the base of the aquifer.

The intermediate aquifer could also be utilized to produce 5,000 AFY with 12 wells pumping at about 350 gpm. Over the 30-year project lifespan it is estimated that there will be about an average of 83 feet of drawdown.

Pumping of the shallow aquifer has the additional benefit to agriculture and communities by locally lowering groundwater levels below the root zone and by reducing the potential for liquefaction. Although a greater number of wells would be required than if pumping from the intermediate aquifer, wells constructed into the shallow aquifer would be less costly to construct. Construction of a well field in the shallow aquifer is a preferred option for this K.G.R.A. Attachment A, Figure A-16, contains a conceptual well field layout for a 5,000 AFY facility in the Salton Sea – K.G.R.A.

Pumping effects could be offset by recharge in the unlined portions of the old Coachella Canal recharging potentially both the shallow and intermediate aquifers. Management of the recharge and pumping would be needed to reduce the potential for subsidence associated pumping.

B.28 HEBER WELL FIELD

A 5,000 AFY, 25,000 AFY, and 50,000 AFY well field was evaluated for the Heber K.G.R.A. The evaluation considered extraction of water from both the shallow and intermediate aquifers. The ability of the aquifers to transmit water is lower in this area and therefore a larger number of wells were required. Table B-4 lists the aquifer characteristics and the number of wells required. The number of wells ranged from 12 to over 400. Only the 5,000 AFY well field was reasonable, requiring 12 wells to

produce from the intermediate aquifer. Wells have been estimated to produce 350 gpm each and the aquifer has about 650 feet of saturated sediments. Pumping of the wells would locally lower the piezometric surface head in the semi-confined aquifer by about 44 feet over the 30-year project lifespan. Attachment A, Figure A-17, contains a conceptual well field layout for the 5,000 AFY facility in the Heber K.G.R.A.

Recharge to the intermediate aquifer in this area could occur from percolation of water applied for agriculture which has migrated through the shallow aquifer and the weakly confining clay bed. No dedicated recharge facilities are planned. Additional testing will be needed to confirm source of water is either vertically from the shallow aquifer or from Mexico. Pumping would need to be designed to limit pumping affects to groundwater in Mexico.

B.29 Conceptual Groundwater Storage Banking Facilities for Well Fields

Groundwater recharge facilities constructed within the unlined old Coachella Canal can be used for conjunctive use and to mitigate pumping effects for the East Brawley, East Mesa, and Salton Sea K.G.R.A.s. The groundwater gradient is to the west and would provide recharge to replenish water extracted by the well fields constructed east of the Calipatria Fault. Groundwater banking within the East Mesa will provide a method of storing water during under run years when excess water would be available. Historically, under run volumes for IID have ranged from 15,000 acre-feet to over 250,000 acre-feet and could be placed into storage.

A 15-mile long section of the old unlined Coachella Canal west of the San Andreas Fault and south of the Glamis K.G.R.A. was abandoned when the lined canal was constructed. The unlined Coachella Canal has the ability to recharge about 10,000 AFY per mile of unlined canal (USBR, 1992). If all of the unlined portions were used, about 150,000 AFY could be recharged.

Conceptually the old unlined canal will need to be modified to serve as a recharge facility. A turnout would have to be constructed to divert water from the lined Coachella Canal into the unlined canal. Under run water could be allowed to flow into the unlined canal saturating whatever length of the unlined canal until the ideal volume of water percolates. This approach limits the potential environmental impacts. However, along portions of the unlined canal layer of clay, 1 to 1.5 feet thick, was installed into the canal to reduce percolation losses. Removal of the clay layer would increase percolation rates. The sediments could be used to create intermediate berms in the canal confine the recharge water to highly permeable soil sections and reduce evaporation. Spillways could be constructed in the intermediate berms to allow excess water to spill into the adjacent basin, depending upon the amount of water available. This will allow for a compartmentalized series of recharge basins for greater infiltration and less evaporation. To keep the recharge near the well fields, modifying any favorable two-mile long section of the old unlined Coachella Canal could provide capacity to percolate 20,000 AFY to 40,000 AFY.

Constraints to the recharge facilities include ownership and management of the canal area by the BLM, existence of sensitive habitats, and ability to obtain easements and rights-of- way. A land exchange could overcome some of the potential constraints. The possibility for the land exchanges should be researched to determine the feasibility of such exchanges.

B.30 River and Tile Drain Source Water Conceptual Design

Water in the Alamo and New Rivers contain tailwater from the irrigated areas within the Imperial Valley and some of the water in the rivers could be reused. About 2.6 MAFY quantity of water is applied to irrigate agriculture and for MCI use within the Imperial Valley. About 30 percent of the water delivered for irrigation is percolated through the soil and captured by tile drains or becomes tailwater that is conveyed by a vast drainage system to the Alamo and New Rivers, which convey the water to the Salton Sea. In 2011, the tilewater and tailwater amounted to 830 AF. The irrigated areas could possibly be considered a recharge area. As such, no recharge facilities would have to be constructed. Because the water gravity drains to the rivers no wells would be required. After 2017, the tailwater can be considered a water supply source to the desalination plants. However, possible environmental complications need to be considered.

Water can be retrieved from large drains or the water could be pumped from the Alamo River to be used as source water for the desalination plants. The quantity of water available from these sources to use for desalination is greater than the amount needed to supply 50,000 AFY of new water. Refer to Appendix G for the analysis of available water from the Alamo River and the various drains. This concept could be used as a source of supply to the South Brawley and Salton Sea K.G.R.A.s as shown on Figures A-4 and A-14, contained in Attachment A.

B.31 Conceptual Brine Disposal

The desalination process produces brine that will need to be disposed. It has been assumed that 25 percent of the raw water delivered to the treatment plant will become brine. The brine could be disposed of by either injecting it through wells into deeper aquifers, which begin about 1,500 feet below ground surface, or it can be pumped into evaporation ponds at the ground surface.

There are two choices for the use of injection wells. Either new injection wells will be constructed for the disposal or, if possible, existing injection wells that are operated by the local geothermal power plants may be utilized.

Should new injection wells be elected to be constructed for brine disposal their number, injection rates, and depths will have to be confirmed. Assuming the injection wells can dispose of about 2,000 gpm the number of injection wells ranges from one to five depending on the size of the well field.

B.32 CAPITAL PROJECT ALTERNATIVES

Seventeen desalination (desal) alternatives were developed to compare the combination of different source water, distribution system, and recharge elements. Table B-5 summarizes the alternatives, their components, and whether they are feasible or not. Each alternative is summarized below by their K.G.R.A. locations. The costs to develop and operate each alternative were developed and are reported in Appendix N and summarized in Table 12-5. Figure B-11 shows the general locations of each K.G.R.A..

Table B-5. Drawdown and Feasibility of Alternatives

K.G.R.A.	Alternative Designation	Plant Capacity (AFY)	Aquifer	Pumping Rate (gpm)	Number of Wells	30-Year Drawdown (ft)	Banking (Y/N)	Recommended (Y/N)
South Brawley	1	**50,000**	Intermediate	2000	21	172	N	N
	2	**50,000**	Intermediate	2000	21	172	Y	Y
	3	**50,000**	Intermediate	2000	21	172	Y	Y
	4	**50,000**	N/A	N/A	0	N/A	N	Y
	5	**25,000**	Intermediate	2000	11	92	Y	N
	6	**25,000**	Intermediate	2000	11	92	N	N
East Brawley	7	**25,000**	Intermediate	2000	11	92	N	Y
	8	**25,000**	Intermediate	2000	11	92	Y	Y
	9	**25,000**	Intermediate	2000	11	92	Y	Y
	10	**5,000**	Intermediate	2000	2	35	Y	Y
East Mesa	11	**25,000**	Intermediate	2000	10	92	N	Y
	12	**25,000**	Intermediate	2000	10	92	Y	Y
	13	**5,000**	Intermediate	2000	2	35	N	Y
Salton Sea	14	**50,000**	N/A	N/A	0	N/A	N	Y
	15	**50,000**	N/A	N/A	0	N/A	N	Y
	16	**5,000**	Shallow	200	21	190	N	Y
Heber	17	**5,000**	Intermediate	350	12	44	N	Y

Note: Pumping Rate assumes pumping 365 per year for 24 hours/day
N/A = Not applicable

B.33 SOUTH BRAWLEY K.G.R.A – KEYSTONE AREA

Desal Alternative 1: 50,000 AFY Keystone Desalination with Well Field. This alternative is represented in Figure A-1 and was created to test the feasibility of pumping 50,000 AFY of groundwater for the

desalination plant without the mitigation effects of groundwater recharge. The new water from this alternative would be used to for IID irrigation purposes.

Desal Alternative 2: 50,000 AFY Keystone Desalination with Well Field and Groundwater Recharge. This alternative builds on Desal Alternative 1 and is represented in Figure A-2. It

highlights the use of groundwater to supply the desalination plant and use recharge in an unlined portion of the Coachella Canal to mitigate for groundwater pumping. The location of the planned recharge facilities is located in the inset on Figure A-2.

Desal Alternative 3: 50,000 AFY Keystone Desalination with Well Field, Groundwater Recharge and MCI Distribution. This alternative is the same as Desal Alternative 2 and adds the conveyance of new water to be used for MCI purposes. Figure A-3 represents this alternative.

Desal Alternative 4: 50,000 AFY Keystone Desalination with water from the Alamo River water. The use of surface water does not require a dedicated groundwater recharge facility and will not have the additional annual operations and maintenance costs of a well field. A pump lift station would be required to take water from the river and take it into the treatment plant. Figure A-4 represents this alternative.

Desal Alternative 5: 25,000 AFY Keystone Desalination with Well Field, Groundwater Recharge and Evaporation Ponds. This alternative was created to test the feasibility of using evaporation ponds to dispose of the brine stream. Figure A-5 shows a potential location of the evaporation ponds and the disposal and land costs have been estimated.

Desal Alternative 6: 25,000 AFY Keystone Desalination with Well Field. This alternative was developed to determine if pumping 25,000 AFY would have a low enough groundwater impact to supply the desalination plant without using groundwater recharge in the unlined Coachella Canal and is represented by Figure A-6.

B.34 EAST BRAWLEY K.G.R.A.

Desal Alternative 7: 25,000 AFY East Brawley Desalination with Well Field. This alternative is represented in Figure A-7 and was created to test the feasibility of pumping 25,000 AFY of groundwater for the desalination plant without the mitigation effects of groundwater recharge. The new water from this alternative would be used for IID irrigation purposes.

Desal Alternative 8: 25,000 AFY East Brawley Desalination with Well Field and Groundwater Recharge. This alternative builds on Desal Alternative 7 and is represented in Figure A-8. It highlights the use of groundwater to supply the desalination plant and use recharge in a portion of the old unlined Coachella Canal to mitigate for groundwater pumping. The location of the planned recharge facilities is located in the inset on Figure A-8.

Desal Alternative 9: 25,000 AFY East Brawley Desalination with Well Field and Groundwater Recharge and MCI Distribution. This alternative is the same as Desal Alternative 8 and adds the conveyance of new water to be used for MCI purposes. Figure A-9 represents this alternative.

Desal Alternative 10: 5,000 AFY East Brawley Desalination with Well Field. This alternative represented in Figure A-10 uses groundwater for the desalination plant without the use of recharge. The new water from this alternative would be used for IID irrigation purposes.

B.35 EAST MESA K.G.R.A.

Desal Alternative 11: 25,000 AFY East Mesa Desalination with Well Field and Industrial Distribution system to the nearby K.G.R.A.. This alternative was developed to determine if pumping 25,000 AFY would have a low enough impact to supply the desalination plant with groundwater without using groundwater recharge in the unlined Coachella Canal and is represented by Figure A-11. The new water from this alternative would be used for IID irrigation purposes and industrial distribution.

Desal Alternative 12: 25,000 AFY East Mesa Desalination with Well Field and Groundwater Recharge and Industrial Distribution. This alternative builds on Desal Alternative 11 and is represented in Figure A-12. It highlights the use of groundwater to supply the desalination plant and use recharge an unlined portion of the Coachella Canal to mitigate for groundwater pumping. The location of the planned recharge facilities is located in the inset on Figure A-12. The new water from this alternative would be used for IID irrigation purposes and industrial distribution.

Desal Alternative 13: 5,000 AFY East Mesa Desalination with Well Field and Industrial Distribution. This alternative represented in Figure A-13 uses groundwater for the desalination plant without the use of recharge. The new water from this alternative would be used by local geothermal plants.

B.36 SOUTH SALTON SEA K.G.R.A.

Desal Alternative 14: 50,000 AFY South Salton Sea Desalination with Alamo River water. Using the river as the source water is a way to recover the tilewater and tailwater. This alternative does not impact groundwater through pumping the aquifers. The alternative is presented in Figure A-14. The new water from this alternative would be used by local geothermal plants.

Desal Alternative 15: 50,000 AFY South Salton Sea Desalination with Alamo River Water and MCI Distribution system pipeline. This alternative uses the same concept as Desal Alternative 14 with the addition of conveyance of new water to water treatment plants for municipal users and to the geothermal plants. This alternative is represented in Figure A-15.

B.37 SOUTH SALTON SEA K.G.R.A. – EAST

Desal Alternative 16: 5,000 AFY South Salton Sea – East Desalination with Well Field. This alternative represented in Figure A-16 uses groundwater for the desalination plant without the use of recharge. The new water from this alternative would be used by local geothermal plants.

B.38 HEBER K.G.R.A.

Desal Alternative 17: 5,000 AFY Heber Desalination with Well Field with M & I Distribution. This alternative represented in Figure A-17 uses groundwater for the desalination plant without the use of recharge. The new water from this alternative would be used for irrigation purposes and new MCI purposes.

B.39 RECOMMENDATIONS

Limited data was available and was interpolated to prepare the conceptual well fields, recharge facilities and brine disposal injection wells. Validation of the assumptions is needed before proceeding to preliminary designs. We recommend the following initial activities:

1. Discuss use of the old unlined canal as a recharge facility with the landowner.
2. Acquire additional information is needed to verify the assumptions and interpretations of the well production capacities, salt concentrations, and temperature of the water in the aquifers used in the analysis.
3. Drill a large diameter pilot production well into the intermediate aquifer in the East Brawley K.G.R.A. to confirm its production capacity and to allow use of existing monitoring wells during production testing to confirm the interconnectedness of the intermediate aquifer to the sediments beneath the unlined canal.
4. Install one nested piezometer on the west side of the Calipatria Fault to assess the effect of the fault during pumping.
5. Excavate several potholes within the unlined canal to resolve whether there is a clay liner and whether its removal could enhance the percolation rates.
6. Drill additional test wells in the other K.G.R.A.s to confirm the production capacity of the wells along with the temperature and salinity with depth.
7. Enter into preliminary discussions with geothermal power plant operators as to whether they would be willing to accept and dispose of the brine water.

Upon completion of this work, refine the previously developed Imperial County Groundwater Model to more accurately predict the effects of the well field pumping in conjunction with recharge in the unlined canal.

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Attachment A

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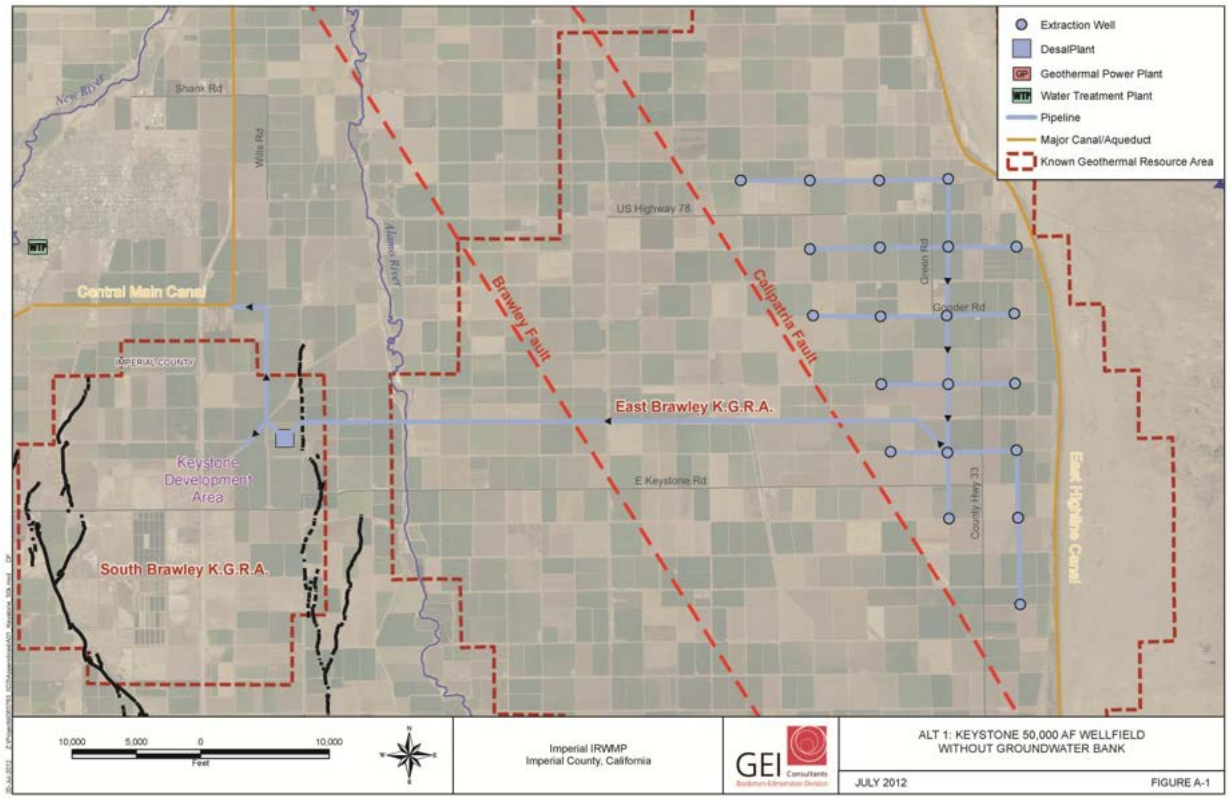

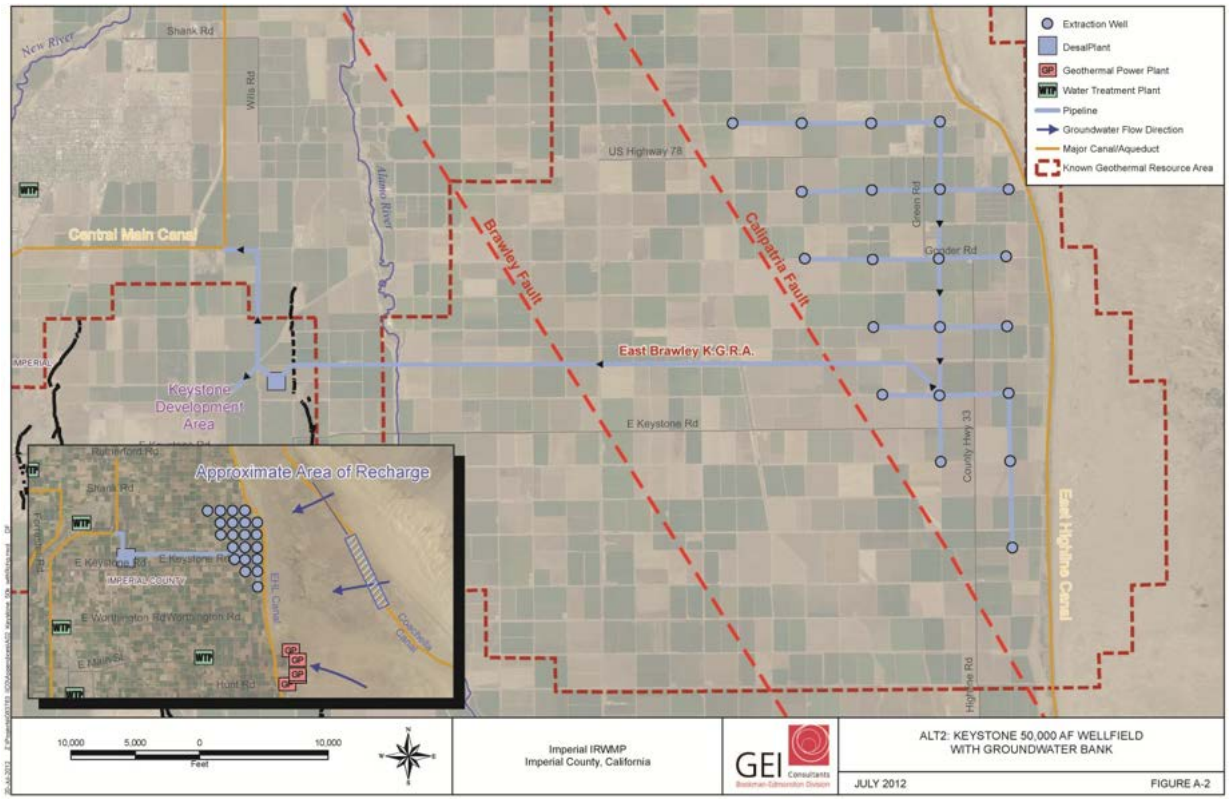

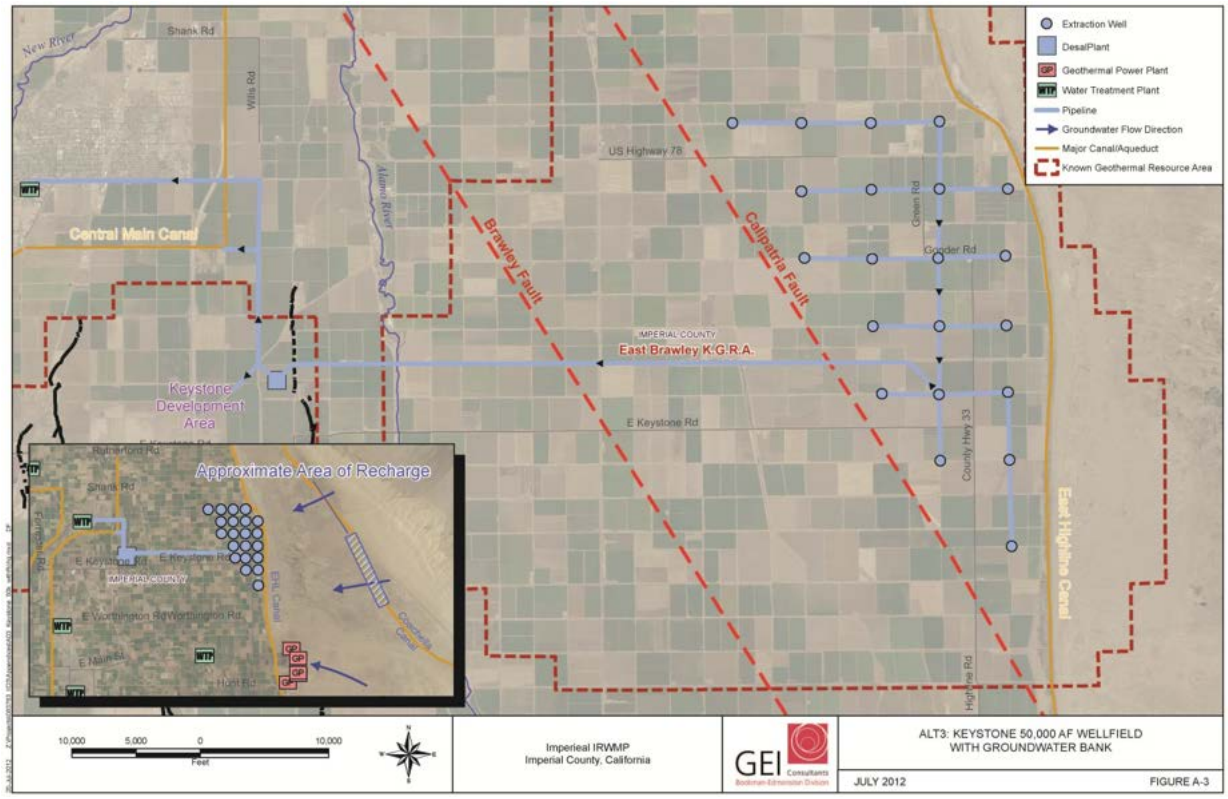

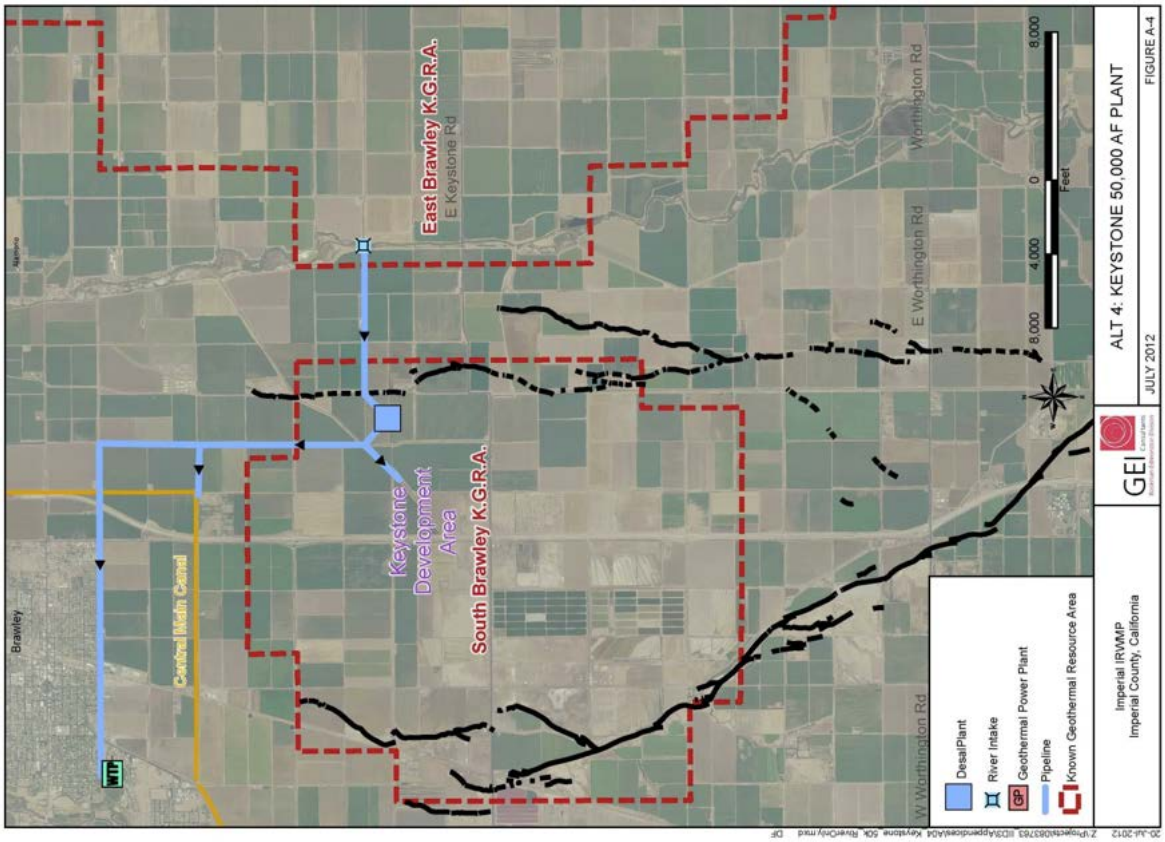

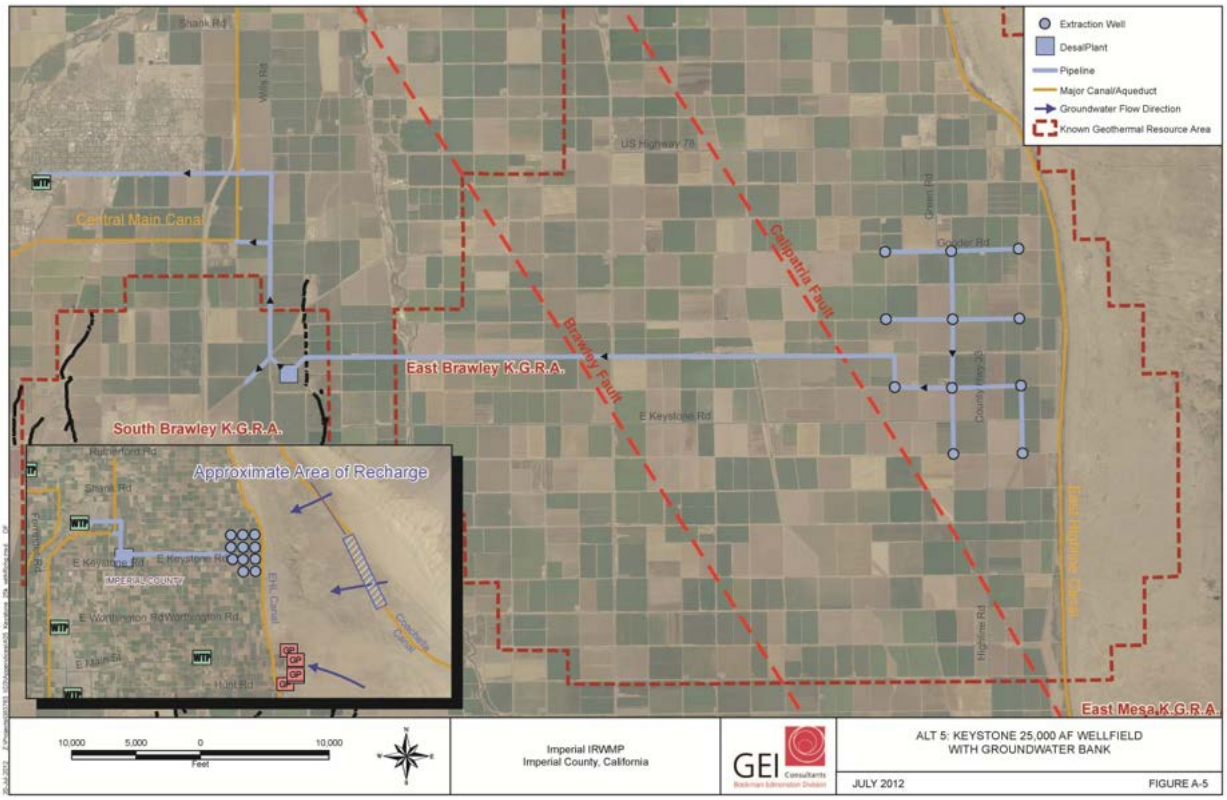

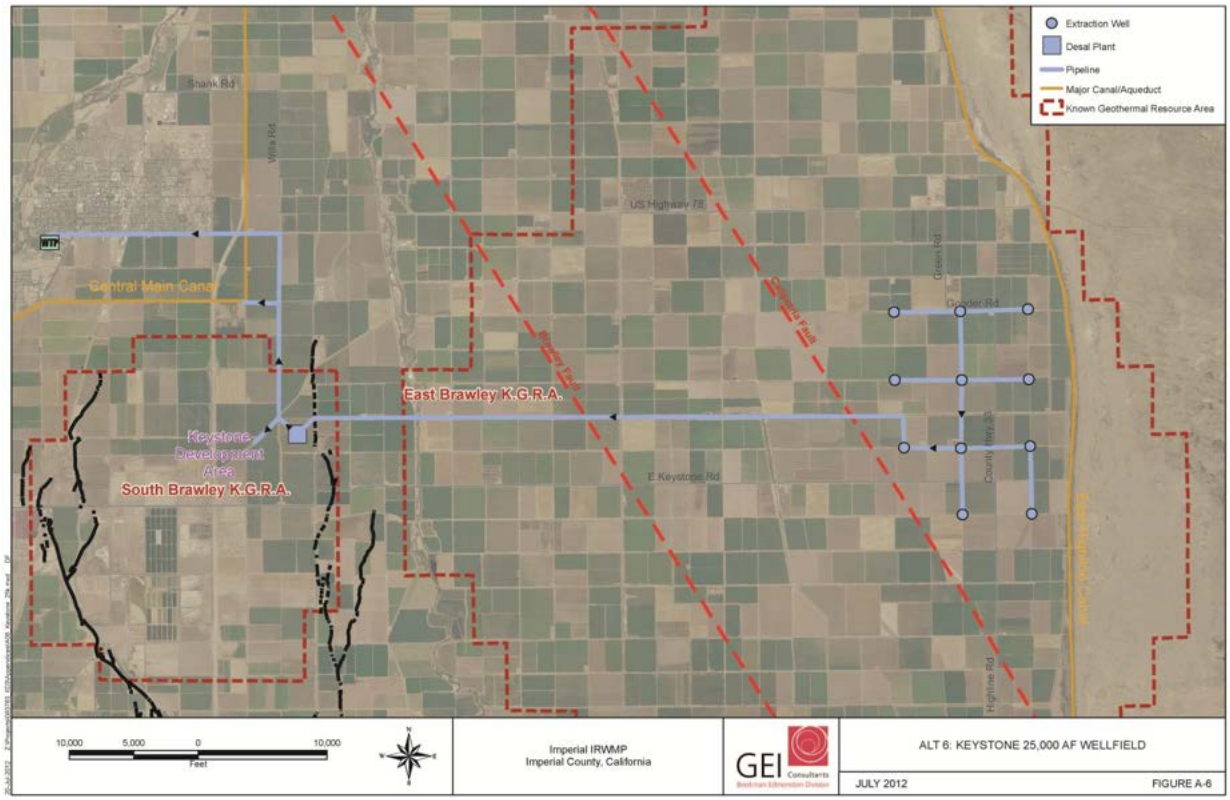

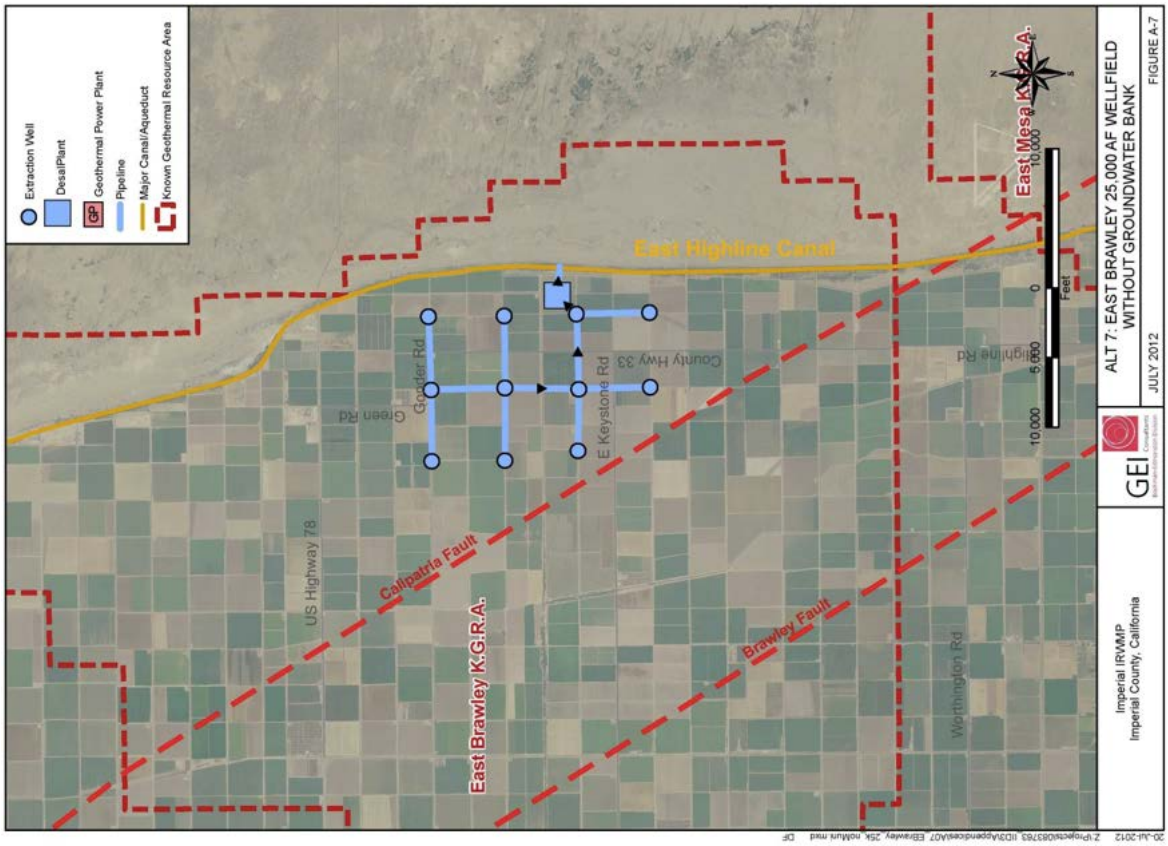

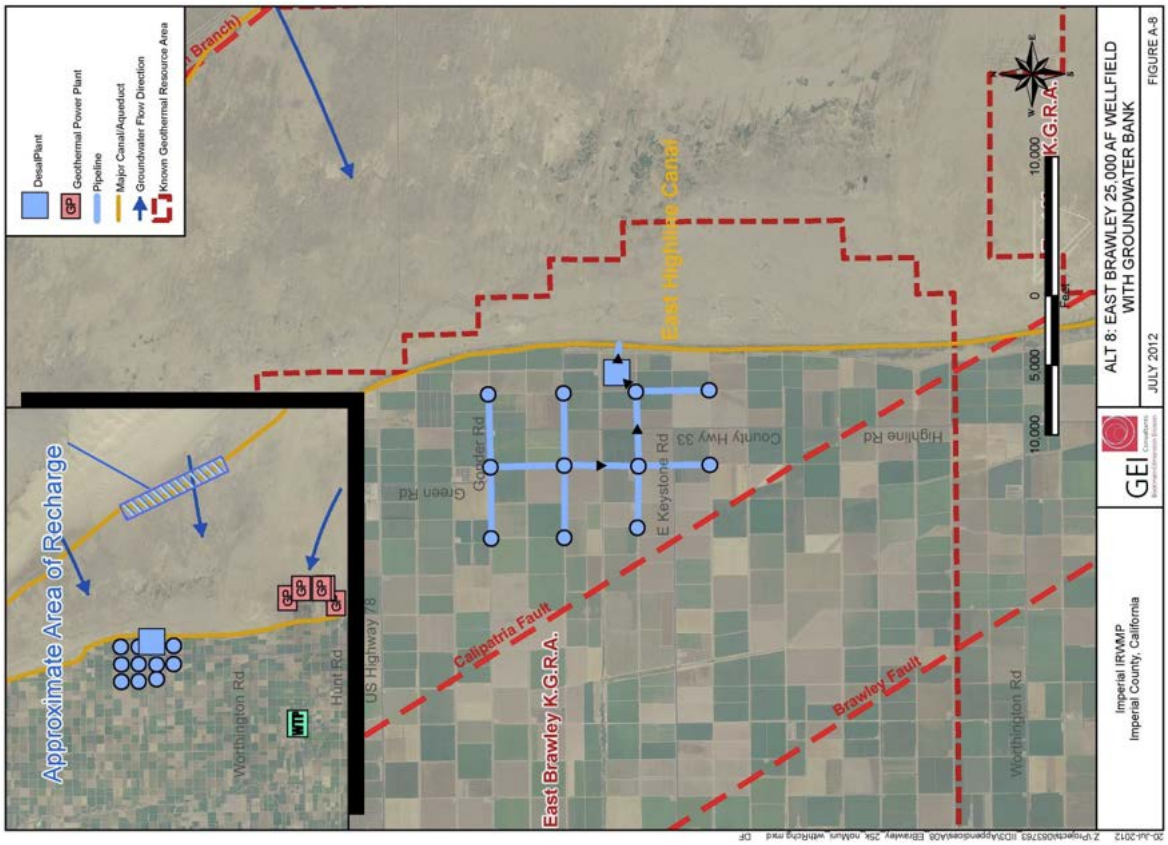

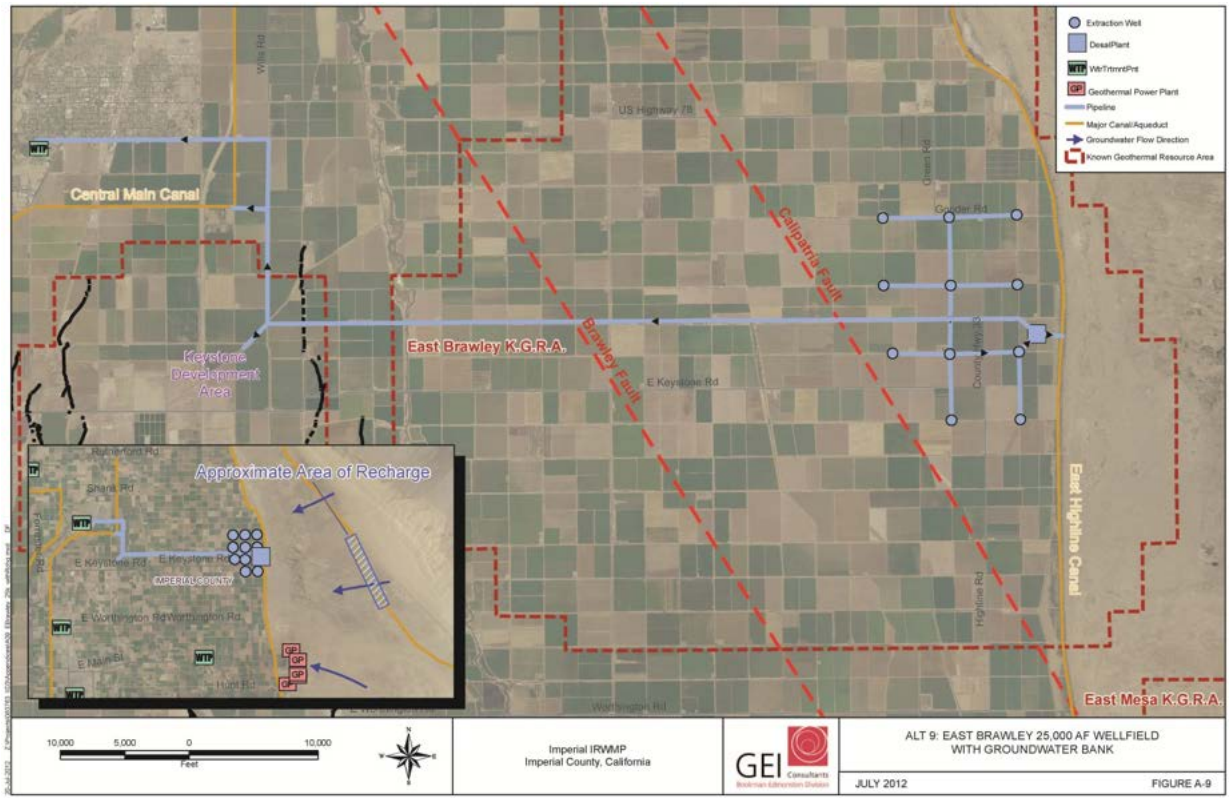

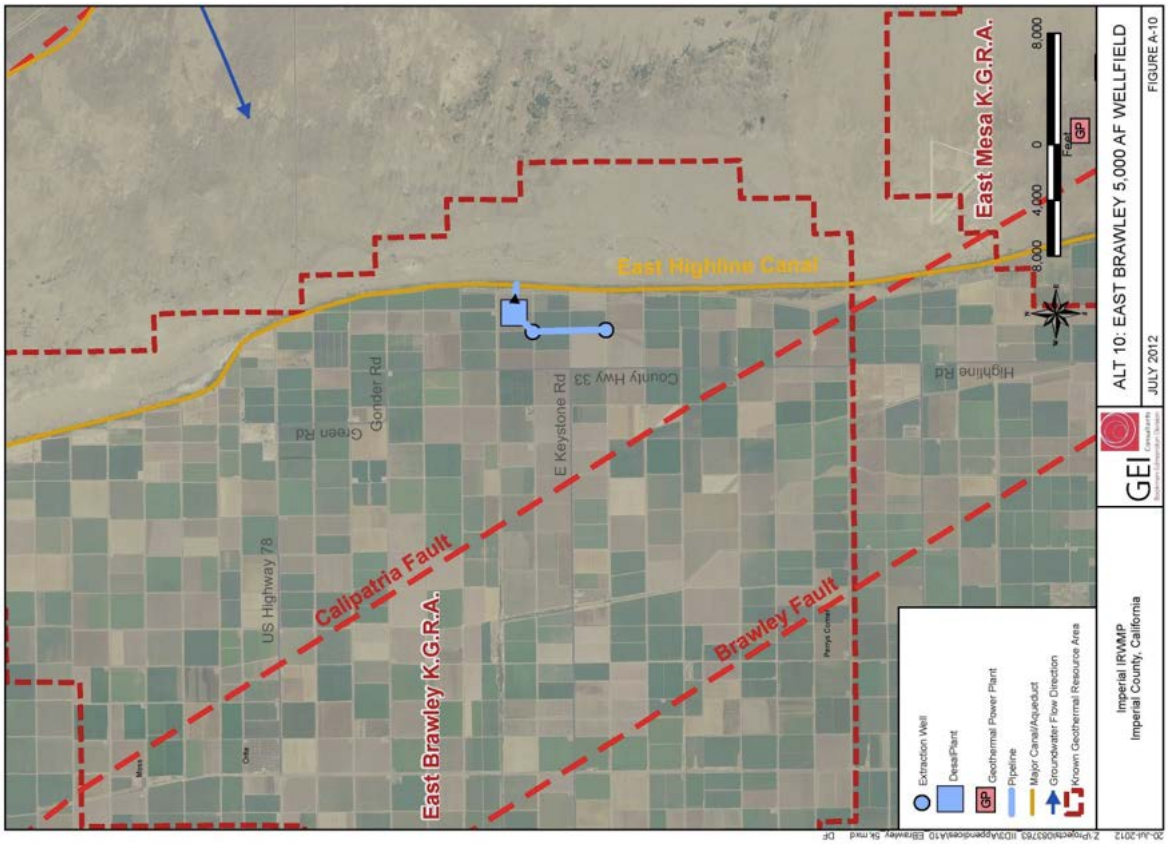

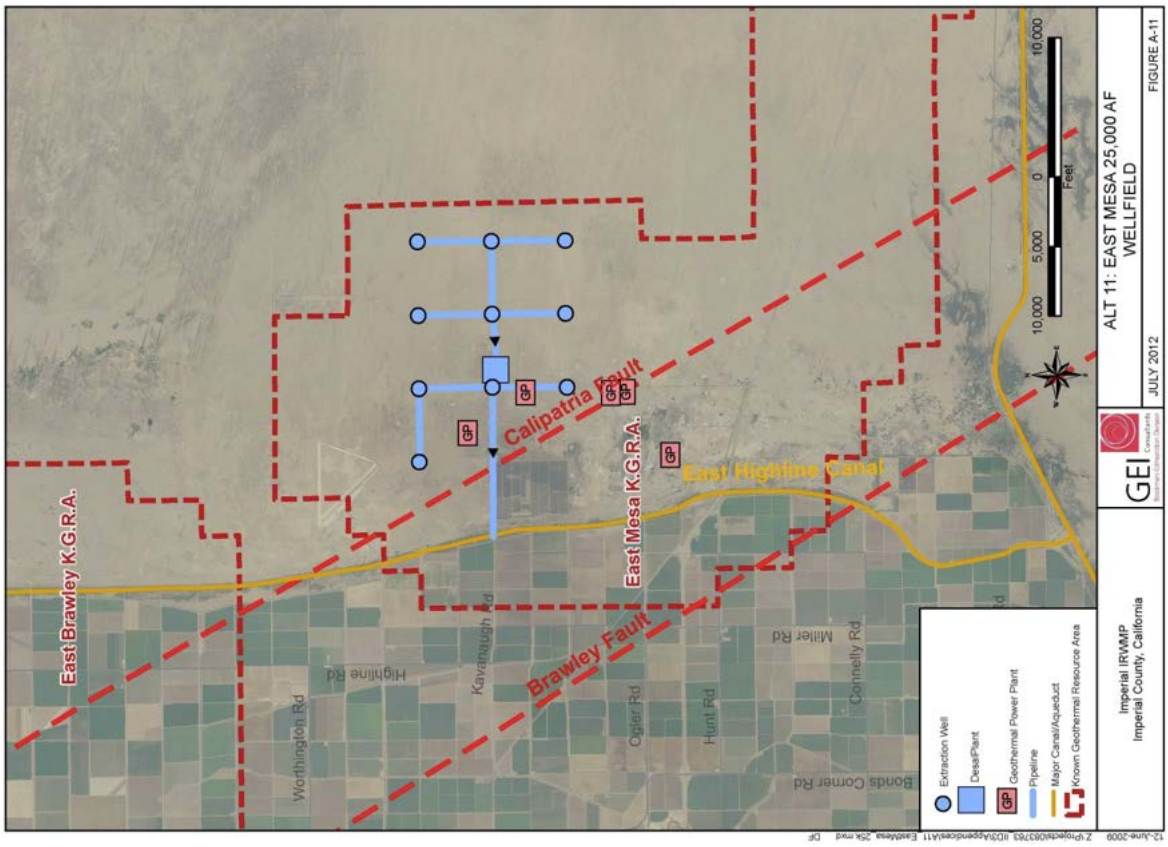

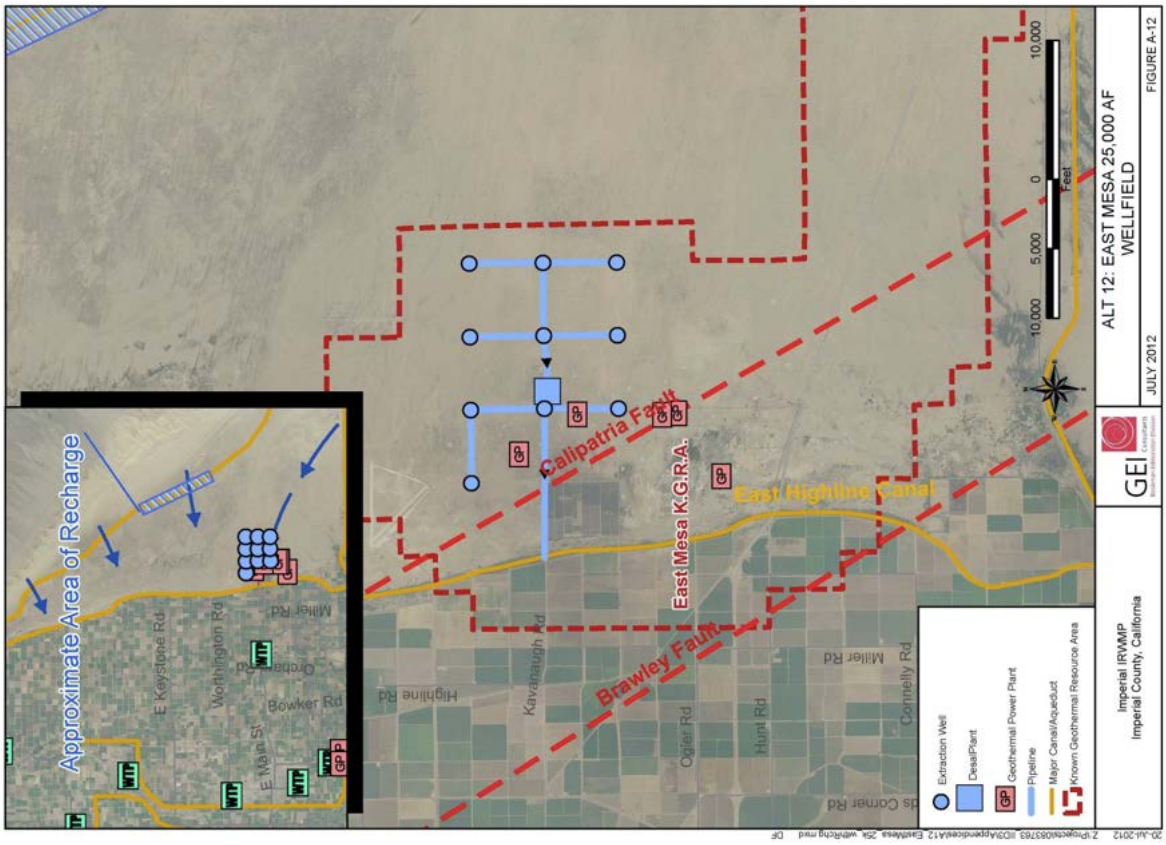

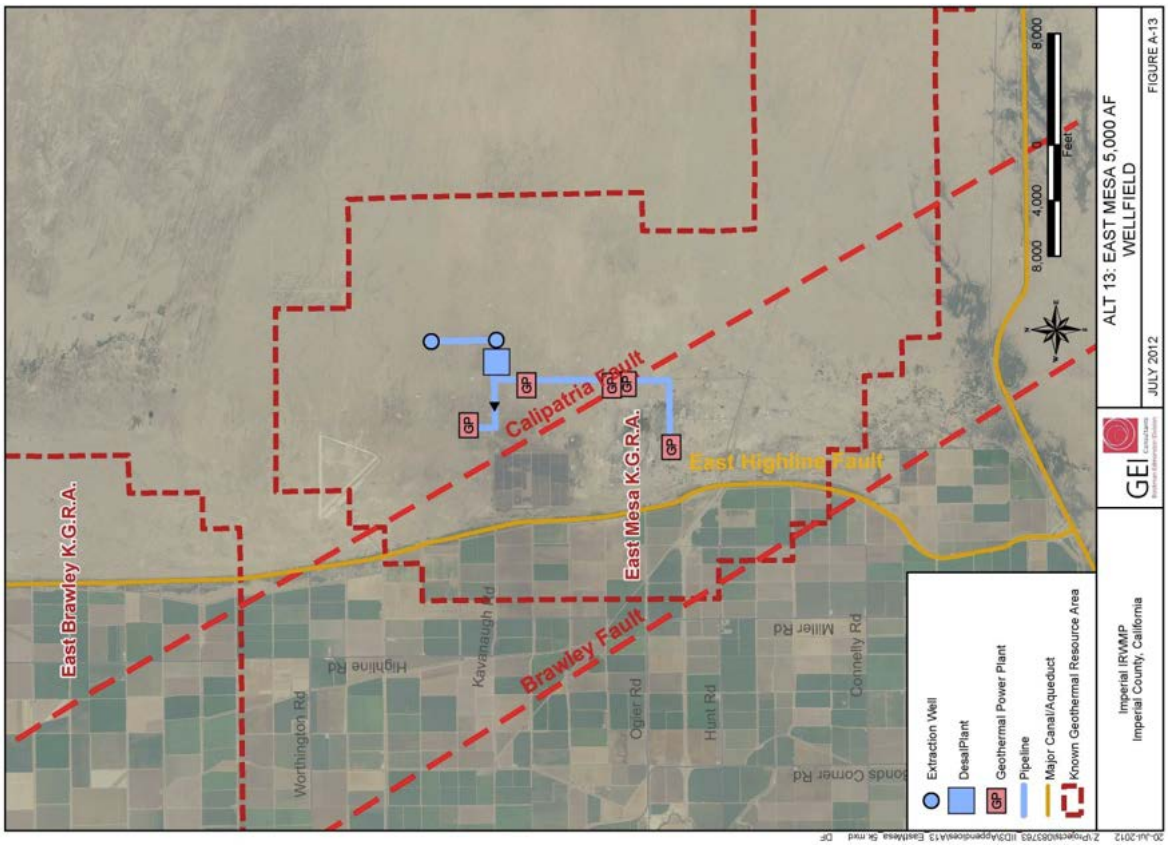

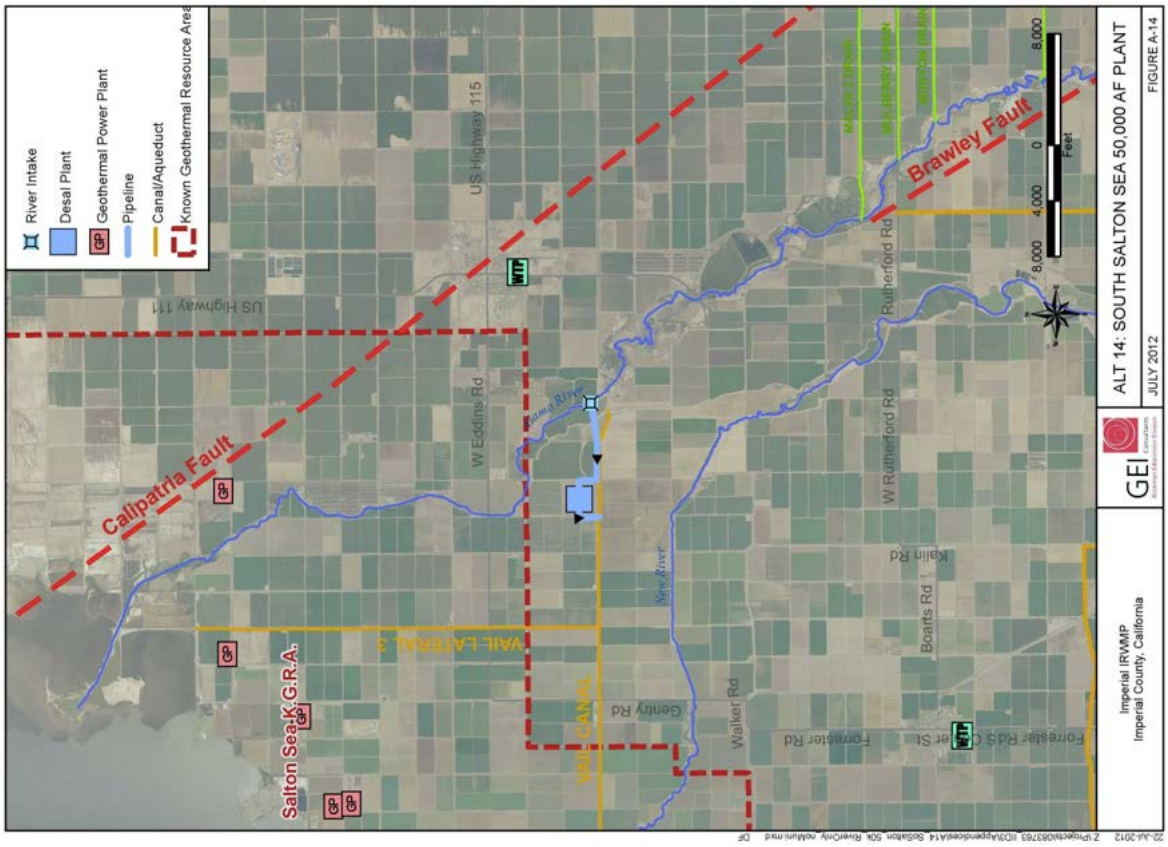

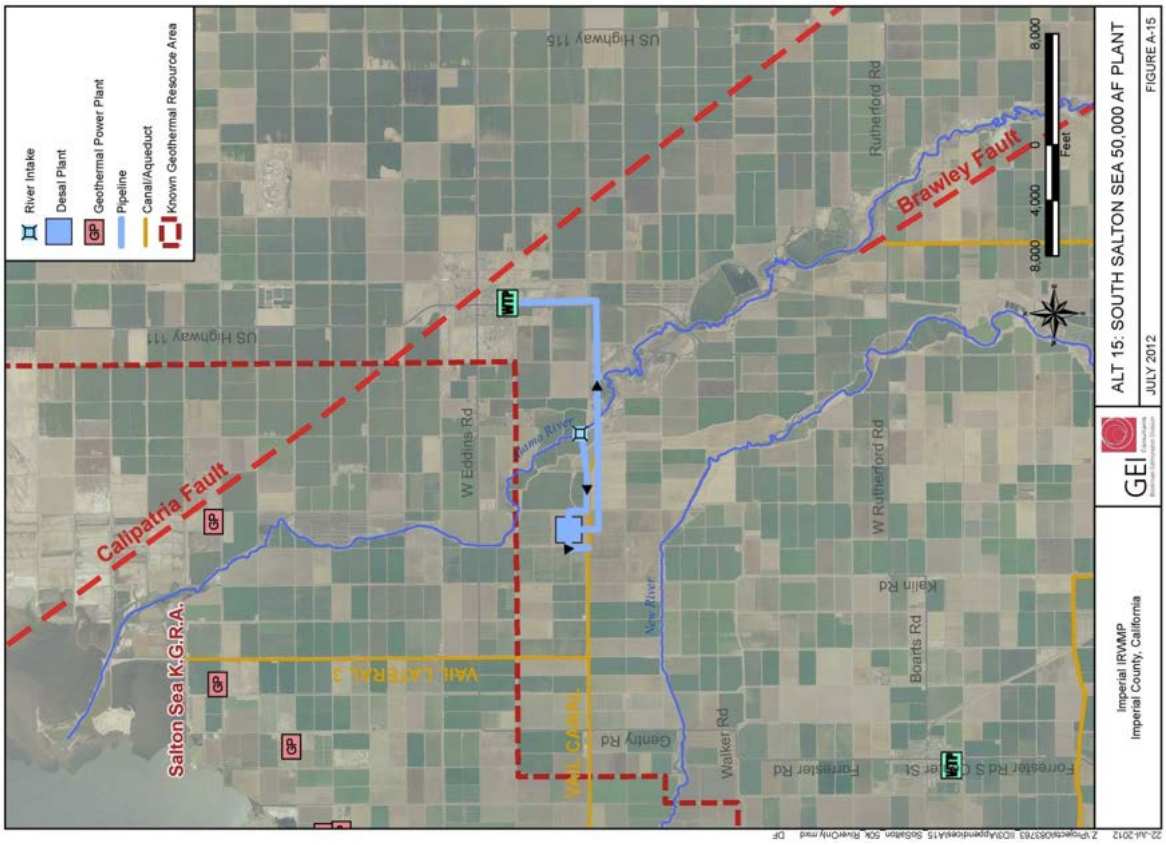

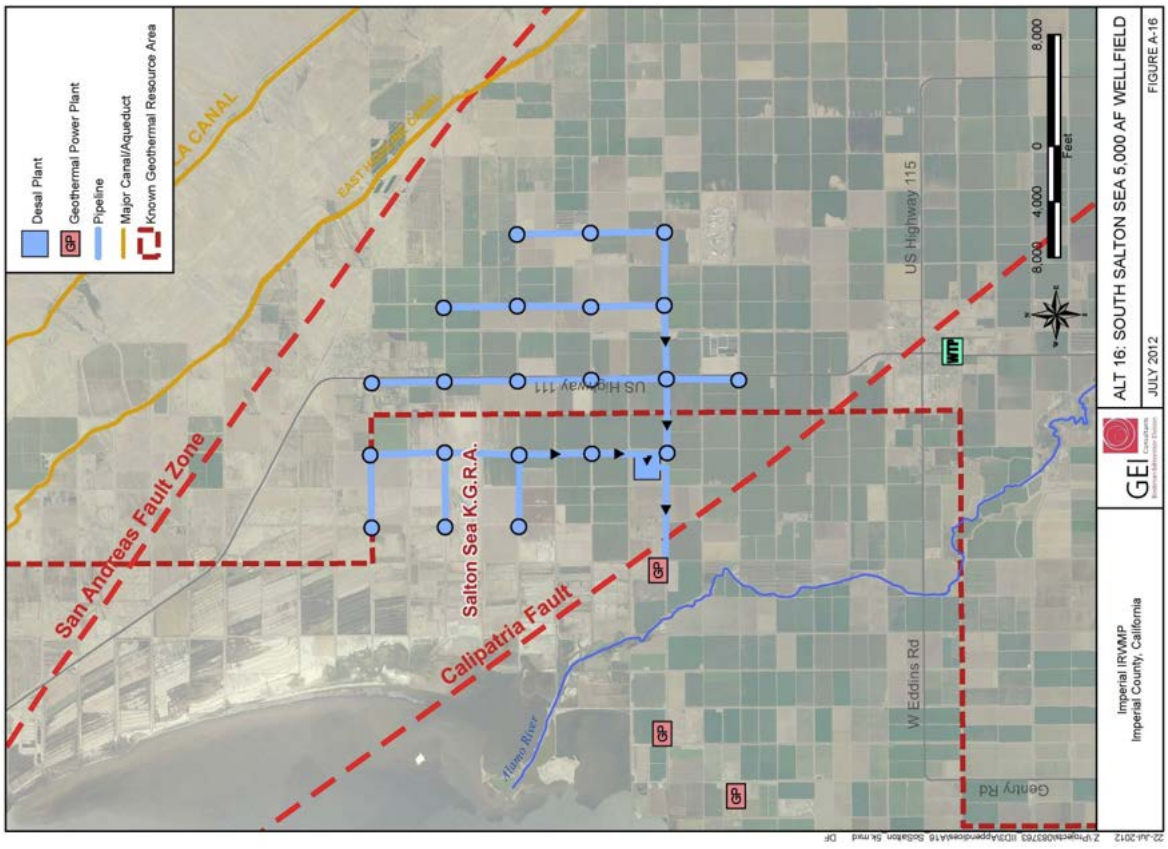

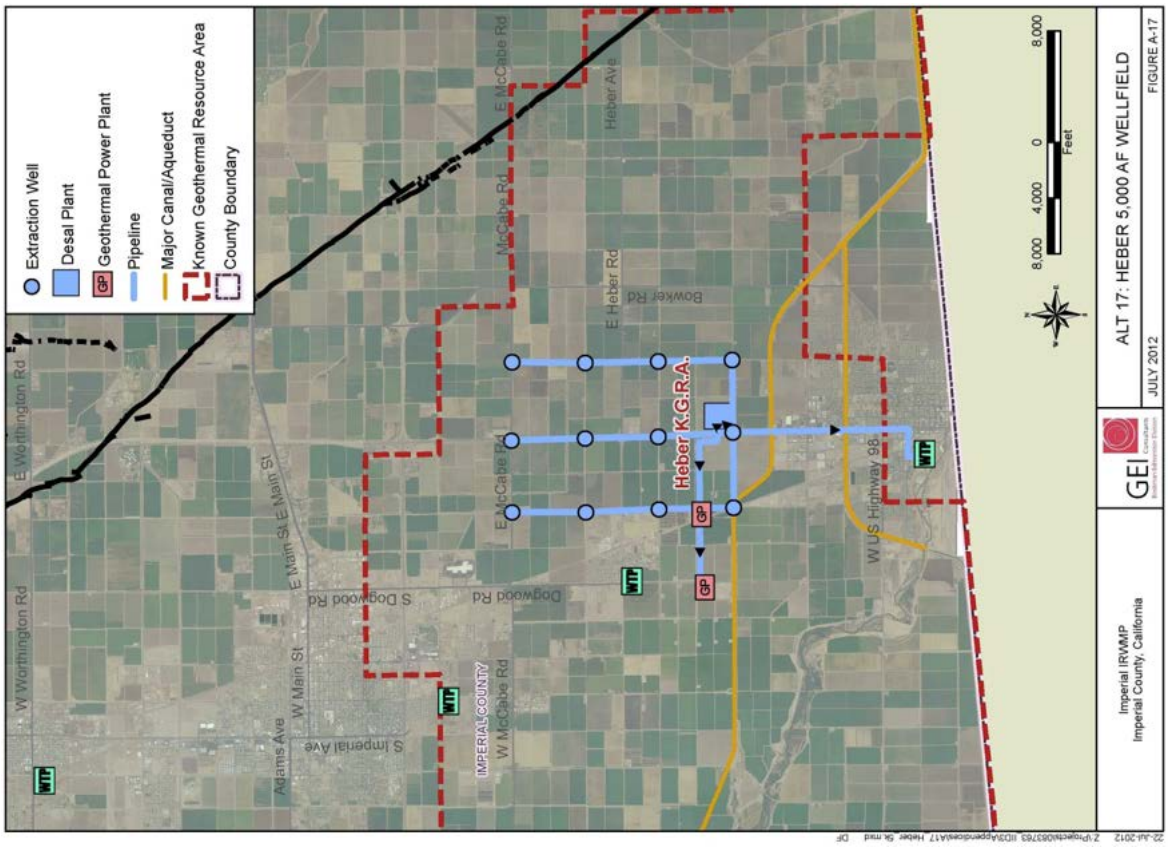

IMPERIAL
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WATER MANAGEMENT PLAN

GEI Consultants





PC ORIGINAL PKG

CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS
(Public Resource Code §21081, CEQA Guidelines §15091)
Final Environmental Impact Report for the
Wister Solar Energy Facility Project
(SCH No. 2019110140)

1 Introduction

The following Findings are made for the Environmental Impact Report SCH #2019110140 (the "EIR") for the proposed Wister Solar Energy Facility Project (herein referred to as the "project"). The EIR analyzes the significant and potentially significant environmental impacts, which may occur as a result of the project.

The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County. The project site is located on one parcel of land identified as APN 003-240-001. The parcel is comprised of approximately 640 acres of land and is currently zoned Open Space/Preservation with a Geothermal Overlay (S-2-G). The proposed solar energy facility component of the project would be located on approximately 100 acres within the northwest portion of the larger 640-acre project site parcel.

The project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (physical area where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road.

The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 MW PV solar energy facility on approximately 100 acres. The proposed solar energy project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92-kV substation, which will be tied directly to the Imperial Irrigation District's 92-kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92-kV "K" line.

The project applicant has secured a Power Purchase Agreement (PPA) with San Diego Gas and Electric for the sale of power from the project.

1.1 Purpose of CEQA Findings; Terminology

CEQA Findings play an important role in the consideration of projects for which an EIR is prepared. Under Public Resources Code §21081 and CEQA Guidelines §15091 above, where a final EIR identifies one or more significant environmental effects, a project may not be approved until the public agency makes written findings supported by substantial evidence in the administrative record regarding each of the significant effects. In turn, the three possible findings specified in CEQA Guidelines §15091(a) are:

1. Changes or alterations have been required in, or incorporated into, the project, which avoid or substantially lessen the significant environmental effect as identified in the final EIR.
2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

3. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

CEQA Guidelines §15092(b) provides that no agency shall approve a project for which an EIR was prepared unless either:

1. The project approved will not have a significant effect on the environment, or
2. The agency has:
    a. Eliminated or substantially lessened all significant effects where feasible as shown in the findings under Section 15091, and
    b. Determined that any remaining significant effects on the environment found to be unavoidable under Section 15091 are acceptable due to overriding concerns as described in Section 15093.

1.2 EIR Process

After the County reviewed the applications for the proposed project, it concluded that the project could have a significant impact on the environment and that preparation of an environmental impact report was determined to be the appropriate CEQA environmental document. The County issued a Notice of Preparation (NOP) on November 6, 2019 and made the NOP available for review and comment for a 35-day period closing on December 11, 2019. The NOP was distributed to city, county, and state and federal agencies, other public agencies, and various interested private organizations and individuals. The NOP was also published in the Imperial Valley Press on November 6, 2019. A public scoping meeting was held on November 14, 2019. Four comment letters were received during the NOP review period. A copy of the NOP and written comments received in response to the NOP are included in Appendix A of the Final EIR.

Based upon comments the County received in response to the NOP, it was determined that the Draft EIR should analyze project related environmental impacts relative to the following ten substantive potential impact areas in the Environmental Analysis section:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources (includes Tribal Cultural Resources)
- Geology and Soils
- GHG Emissions
- Hydrology/Water Quality
- Land Use and Planning
- Transportation/Traffic
- Utilities/Service Systems

Additionally, the Draft EIR was required to include other CEQA substantive sections including an Executive Summary, Introduction, Environmental Setting, Project Description, Analysis of Long-Term Effects, Cumulative Impacts, Effects Not Significant, and Alternatives.

The Draft EIR was circulated for a statutory 45-day public review period starting on June 30, 2020 and ending on August 18, 2020 (50 actual days). Six letters were received during the comment period, and are responded to in the responses to comments section of the Final EIR.

2 Project Description

The proposed Wister Solar Energy Facility Project is located on Assessor Parcel Number (APN) 003-240-001. The proposed solar energy facility consists of three primary components: 1) solar energy generation equipment and associated facilities including a substation and access roads (herein referred to as “solar energy facility”); 2) gen-tie line that would connect the proposed on-site substation to the Point of Interconnection (POI) at the existing IID 92 kV “K” line; and, 3) on-site wireless communication system or fiberoptic cable.

The proposed Wister Solar Energy Facility Project involves the construction and operation of a 20 megawatt (MW) photovoltaic (PV) solar energy facility on approximately 100 acres of privately-owned land north of Niland. The proposed project would be comprised of solar PV panels on single-axis horizontal trackers, an on-site substation and inverters, transformers, and underground electrical cables.

The power produced by the proposed project would be conveyed to the local power grid via an on-site 92 kilovolt (kV) substation, which will be tied directly to the Imperial Irrigation District’s (IID) 92 kV transmission line. A gen-tie line would connect the Wister substation to the POI at the existing IID 92kV “K” line.

A proposed fiberoptic line from the proposed on-site substation would be connected with the existing Niland Substation approximately two miles to the south, which would then be added to connect the proposed on-site substation to the region’s telecommunications system. The length of the proposed fiber optic telecommunications cable route would be approximately two miles. The fiber optic cable would only be constructed in the event that the proposed wireless communication system is not constructed on-site.

2.1 Project Objectives

The following are the project objectives:

- Construct, operate and maintain an efficient, economic, reliable, safe and environmentally sound solar-powered electricity generating facility.
- Help meet California’s RPS requirements, which require that by 2030, California’s electric utilities are to obtain 50 percent of the electricity they supply from renewable sources.
- Generate renewable solar-generated electricity from proven technology, at a competitive cost, with low environmental impact, and deliver it to the local markets as soon as possible.
- Develop, construct, own and operate the Wister Solar Energy Facility, and ultimately sell its electricity and all renewable and environmental attributes to an electric utility purchaser under a long-term contract to meet California’s RPS goals.

- Utilize a location that is in close proximity to an existing switching station and powerlines.
- Minimize and mitigate any potential impact to sensitive environmental resources within the project area.

2.2 Discretionary Actions/Approvals by the County of Imperial

The County is the "lead agency" for the proposed project. Lead agency is defined as, "the public agency, which has the principal responsibility for carrying out or approving a project." The County must undertake the following discretionary actions and approvals for the project:

1. **Approval of CUP – Solar Energy Facility.** Implementation of the project would require the approval of a CUP by the County to allow for the construction and operation of the proposed solar energy facility project. The project site is located on one privately-owned legal parcel zoned Open Space/Preservation with a Geothermal Overlay (S-2-G). Pursuant to Title 9, Division 5, Chapter 19, the following uses are permitted in the S-2 zone subject to approval of a CUP from Imperial County: *Major facilities relating to the generation and transmission of electrical energy provide[d] such facilities are not under State or Federal law, to [be] approved exclusively by an agency, or agencies of the State or Federal government, and provided such facilities shall be approved subsequent to coordination review of the Imperial Irrigation District for electrical matters. Such uses shall include but be limited to the following:*
    - *Electrical generation plants*
    - *Facilities for the transmission of electrical energy (100-200 kV)*
    - *Electrical substations in an electrical transmission system (500 kv/230 kv/161 kV)*
    - *Communication Towers: including radio, television, cellular, digital, along with the necessary support equipment such as receivers, transmitters, antennas, satellite dishes, relays, etc.*
2. **Approval of CUP – Groundwater Well.** Pursuant to Title 9 Division 21: Water Well Regulations, §92102.00, the Applicant will be required to obtain a CUP for the proposed on-site groundwater well. As required by §92102.00, no person shall (1) drill a new well, (2) activate a previously drilled but unused well, (unused shall mean a well or wells that have not been used for a 12 month) period by installing pumps, motors, pressure tanks, piping, or other equipment necessary or intended to make the well operational, (3) increase the pumping capacity of a well, or (4) change the use of a well, without first obtaining a CUP through the County Planning & Development Services Department.
3. **General Plan Amendment.** An amendment to the County's General Plan, Renewable Energy and Transmission Element is required to implement the proposed project. CUP applications proposed for specific renewable energy projects not located in the Renewable Energy (RE) Overlay Zone would not be allowed without an amendment to the RE Overlay Zone. APN No. 003-240-001 (in which the solar energy facility will be located), is immediately adjacent to, but outside of the RE Overlay Zone; therefore, the applicant is requesting a General Plan Amendment to include/classify APN No. 003-240-001 into the RE Overlay Zone. The underlying "Recreation" General Plan designation would remain.

4. **Zone Change.** The project site (APN No. 003-240-001) is located immediately adjacent to, but outside of the RE Overlay Zone; therefore, the applicant is requesting a zone change to include/classify APN No. 003-240-001 (which includes the solar energy facility) into the RE Overlay Zone.
5. **Variance.** A Variance is required to exceed the height limit for transmission towers within the S-2 zone. The existing S-2 zone allows a maximum height limit of 40 feet, whereas implementation of the project may involve the construction of transmission towers of up to 70 feet in height. Therefore, a Variance for any structure exceeding the existing maximum height limit of 40 feet would be required.
6. **Certification of the EIR.** After the required public review for the Draft EIR, the County will respond to written comments, edit the document, and produce a Final EIR to be certified by the Planning Commission and Board of Supervisors prior to making a decision on approval or denial of the project.

Subsequent ministerial approvals may include, but are not limited to:

- Grading and clearing permits
- Building permits
- Reclamation plan
- Encroachment permits
- Transportation permit(s)

2.3 Discretionary Actions/Approvals by Other Agencies

Responsible Agencies are those agencies that have discretionary approval over one or more actions involved with development of the project. Trustee Agencies are state agencies that have discretionary approval or jurisdiction by law over natural resources affected by a project. These agencies may include, but are not limited to the following:

- California RWQCB – Notice of Intent for General Construction Permit, CWA 401 Water Quality Certification
- ICAPCD – Fugitive Dust Control Plan, Rule 801 Compliance
- CDFW (Trustee Agency) – ESA Compliance, Section 1600 Streambed Alteration Agreement
- USFWS – ESA Compliance
- USACE – Section 404 of the CWA Permit

Potential Actions/Approvals by Other Agencies

The proposed fiber optic cable may require actions or approvals by the following agency:

- IID – for any approvals related to the fiber optic cable

3 Project Location

Solar Energy Facility and Gen-Tie Line

The project site is located approximately three miles north of Niland, a census-designated place, in the unincorporated area of Imperial County. The project site is located on one parcel of land identified as APN 003-240-001. The parcel is comprised of approximately 640 acres of land and is currently zoned Open Space/Preservation with a Geothermal Overlay (S-2-G). The proposed solar energy facility component of the project would be located on approximately 100 acres within the northwest portion of the larger 640-acre project site parcel.

The project site is located east of the intersection of Wilkins Road and an unnamed county road. The project footprint (physical area where proposed project components are to be located) is generally located east of Wilkins Road, north of the East Highline Canal, and west of Gas Line Road.

Fiberoptic Cable

If the on-site wireless communication system is not constructed, the proposed project would include approximately two miles of fiberoptic line from the proposed on-site substation to the existing Niland Substation, located at 402 Beal Road in Niland.

4 Issues Addressed In the EIR

Based on the analysis presented in the NOP and the information provided in the comments to the NOP, the following environmental topics were analyzed in the EIR.

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources (includes Tribal Cultural Resources)
- Geology and Soils
- GHG Emissions
- Hydrology/Water Quality
- Land Use Planning
- Transportation/Traffic
- Utilities/Service Systems

5 Mitigation Monitoring Program

Pursuant to PRC §21081.6, the County has adopted a detailed mitigation and monitoring program prepared under the County's direction. The program is designed to ensure that all mitigation measures as hereafter required are in fact implemented on a timely basis as the project is implemented.

6 Record of Proceedings

For all purposes of CEQA compliance, including these Findings of Fact, the administrative record of all County proceedings and decisions regarding the environmental analysis of the project include but are not limited to:

- The Draft and Final EIR for the project, together with all appendices and technical reports referred to therein, whether separately bound or not, or on a CD;
- All reports, letters, applications, memoranda, maps or other planning and engineering documents prepared by the County, its planning consultant and environmental consultant, the applicant or others and presented to or before the decision-makers or staff;
- All minutes of any public workshops, meetings or hearings, and any recorded or verbatim transcripts or videotapes thereof;
- Any letters, reports or other documents or evidence submitted into the record at any public workshops, meetings or hearings; and
- Matters of common general knowledge to the County which it may consider, including applicable state or local laws, ordinances and policies, the General Plan and all applicable planning programs and policies of the County.

Documents or other materials that constitute the record of proceedings upon which these Findings are made are located at the Department of Planning and Development Services of the County of Imperial, 801 Main Street, El Centro, CA 92243.

7 Findings of Significant Impacts, Required Mitigation Measures and Supporting Facts

The County, having reviewed and considered the information contained in the EIR and the entire administrative record, including but not limited to the expert opinions of the County's professional planning staff and independent consultants familiar with the environmental conditions of the County and the facts and circumstances of the project who prepared the EIR, finds pursuant to Public Resources Code §21081(a)(1) and Guidelines §15091(a)(1) that changes or alterations have been required in, or incorporated into, the project which would mitigate, avoid, or substantially lessen to below a level of significance the following potential significant environmental effects identified in the EIR.

7.1 Air Quality

7.1.1 Air Quality Emissions - Construction

A. **Potential Impact.** The total exhaust emissions generated within each of the construction phases are shown in Final EIR Table 3.3-8. As shown in Final EIR Table 3.3-8, the project's daily construction emissions would not exceed the ICAPCD thresholds for CO, ROG, NO_X, and PM_{10}. Although no significant air quality impact would occur during construction, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Chapter 3.3 of the Final EIR no significant air quality impact would occur during construction. However, all construction projects within Imperial County must comply with the requirements of ICAPCD Regulation VIII for the control of fugitive dust. In addition, the ICAPCD's Air Quality Handbook lists additional feasible mitigation measures that may be warranted to control emissions of fugitive dust and combustion exhaust. Implementation of Mitigation Measures AQ-1 and AQ-2 would provide additional reduction strategies to further improve air quality and ensure that this potential impact would remain less than significant.

The mitigation measures identified to reduce fugitive dust require that the applicant implement a variety of measures that will reduce air emissions associated with grading and construction activities including requiring certain construction equipment to meet, at a minimum, EPA Tier 2 or better (Tier 2+) engine designation, and compliance with the requirements contained within ICAPCD's Regulation VIII-Fugitive Dust Control Measures, an ICAPCD Standard Mitigation Measures for Construction Combustion Equipment and Dust Control, and payment of in-lieu impact fee as determined by ICAPCD using the formula provided in the ICAPCD Policy Number 5 to further reduce NO_X emissions. Implementing these mitigation measures would ensure that the potential impact associated with construction emissions would remain less than significant.

Mitigation Measure AQ-1 Construction Equipment

Construction equipment shall be equipped with an engine designation of EPA Tier 2 or better (Tier 2+). A list of the construction equipment, including all off-road equipment utilized at each of the projects by make, model, year, horsepower and expected/actual hours of use, and the associated EPA Tier shall be submitted to the County Planning and Development Services Department and ICAPCD prior to the issuance of a grading permit. The equipment list shall be submitted periodically to ICAPCD to perform a NOx analysis. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.

Mitigation Measure AQ-2 Fugitive Dust Control

Pursuant to ICAPCD, all construction sites, regardless of size, must comply with the requirements contained within Regulation VIII – Fugitive Dust Control Measures. Whereas these Regulation VIII measures are mandatory and are not considered project environmental mitigation measures, the ICAPCD CEQA Handbook's required additional standard and enhanced mitigation measures listed below shall be implemented prior to and during construction. ICAPCD will verify implementation and compliance with these measures as part of the grading permit review/approval process.

ICAPCD Standard Measures for Fugitive Dust (PM_{10}) Control

- All disturbed areas, including bulk material storage, which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material, such as vegetative ground cover.
- All on-site and offsite unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material.
- All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.
- Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line.
- The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants, and/or watering.

ICAPCD "Discretionary" Measures for Fugitive Dust (PM10) Control

- Water exposed soil only in those areas where active grading and vehicle movement occurs with adequate frequency to control dust.
- Replace ground cover in disturbed areas as quickly as possible.
- Automatic sprinkler system installed on all soil piles.
- Vehicle speed for all construction vehicles shall not exceed 15 miles per hour on any unpaved surface at the construction site.
- Develop a trip reduction plan to achieve a 1.5 average vehicle ridership for construction employees.
- Implement a shuttle service to and from retail services and food establishments during lunch hours.

Standard Mitigation Measures for Construction Combustion Equipment

- Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.
- Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use.
- Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

Enhanced Mitigation Measures for Construction Equipment

To help provide a greater degree of reduction of PM emissions from construction combustion equipment, ICAPCD recommends the following enhanced measures.

- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways.
- Implement activity management (e.g., rescheduling activities to reduce short-term impacts).

Mitigation Measure AQ-3 Dust Suppression

The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. The project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, and Fire Department access/emergency entry/exit points as approved by Fire/Office of Emergency Services [OES] Department).

Mitigation Measure AQ-4 Dust Suppression Management Plan

Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

Mitigation Measure AQ-5 Operational Dust Control Plan

Prior to issuance of a Certificate of Occupancy, the applicant shall submit an operations dust control plan and obtain ICAPCD and ICPDS approval.

ICAPCD Rule 301 Operational Fees apply to any project applying for a building permit. At the time that building permits are submitted for the proposed project, ICAPCD shall review the project to determine if Rule 310 fees are applicable to the project.

7.2 Biological Resources

7.2.1 Special Status Plant Species

A. **Potential Impact.** Harwood's milkvetch has the potential to occur within the Project footprint. Construction of the proposed project would result in the loss of 115.4 acres of potentially suitable creosote bush – white bursage scrub habitat for this species.

The current geographic range of Harwood's milkvetch within California is relatively small. If the project site supported a substantial population of any of this species, direct loss could result in loss of local genetic variation that is important to long-term sustainability of the species. Potential indirect impacts on Harwood's milkvetch, if it occurs on site, could include the introduction of competitive invasive plant species, non-native pests, air and water quality pollutants, dust production, or drainage pattern alteration.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Section 3.4 of the Final EIR, the project's potentially significant direct and indirect impacts would be mitigated to below a level of significance with implementation of Mitigation Measures BIO-1 and BIO-2 of the Final EIR. Adherence to these measures will mitigate the potential impact to a level less than significant. Mitigation Measures BIO-1 and BIO-2 would avoid take and reduce potential impacts to this species to below a level of significance by requiring a focused pre-construction survey for Harwood's milkvetch and modification of project design to avoid the species and/or off-site preservation of an equivalent population.

Mitigation Measure BIO-1 Pre-Construction Plant Survey

Prior to initiating ground disturbance, a focused survey for Harwood's milkvetch shall occur during its blooming period. A reference population shall be identified and confirmed to be blooming at the time that surveys are conducted on the project site.

Should Harwood's milkvetch be present on site, project design will be evaluated to determine if modifications can be made to avoid at least 90-percent of the observed individuals or compensatory mitigation shall be provided through off-site preservation of an equivalent population.

Mitigation Measure BIO-2 General Impact Avoidance and Minimization Measures

The following measures will be applicable throughout the life of the project:

- To reduce the potential indirect impact on migratory birds, bats and raptors, the project will comply with the APLIC 2012 Guidelines for overhead utilities, as appropriate, to minimize avian collisions with transmission facilities (APLIC 2012).
- All electrical components on the project site shall be either undergrounded or protected so that there will be no exposure to wildlife and therefore no potential for electrocution.
- The Project proponent shall designate a Project Biologist who shall be responsible for overseeing compliance with protective measures for the biological resources during vegetation clearing and work activities within and adjacent to areas of native habitat. The Project Biologist will be familiar with the local habitats, plants, and

wildlife. The Project Biologist will also maintain communications with the Contractor to ensure that issues relating to biological resources are appropriately and lawfully managed and monitor construction. The Project Biologist will monitor activities within construction areas during critical times, such as vegetation removal, the implementation of Best Management Practices (BMP), and installation of security fencing to protect native species. The Project Biologist will ensure that all wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed.

- The boundaries of all areas to be newly disturbed (including solar facility areas, staging areas, access roads, and sites for temporary placement of construction materials and spoils) will be delineated with stakes and flagging prior to disturbance. All disturbances, vehicles, and equipment will be confined to the flagged areas.
- No potential wildlife entrapments (e.g., trenches, bores) will be left uncovered overnight. Any uncovered pitfalls will be excavated to 3:1 slopes at the ends to provide wildlife escape ramps. Alternatively, man-made ramps may be installed. Covered pitfalls will be covered completely to prevent access by small mammals or reptiles.
- To avoid wildlife entrapment (including birds), all pipes or other construction materials or supplies will be covered or capped in storage or laydown area, and at the end of each work day in construction, quarrying and processing/handling areas. No pipes or tubing of sizes or inside diameters ranging from 1 to 10 inches will be left open either temporarily or permanently.
- No anticoagulant rodenticides, such as Warfarin and related compounds (indandiones and hydroxycoumarins), may be used within the project site, on off-site project facilities and activities, or in support of any other project activities.
- Avoid wildlife attractants. All trash and food-related waste shall be placed in self-closing containers and removed regularly from the site to prevent overflow. Workers shall not feed wildlife. Water applied to dirt roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards to prevent the formation of puddles, which could attract wildlife. Pooled rainwater or floodwater within retention basins will be removed to avoid attracting wildlife to the active work areas.
- To minimize the likelihood for vehicle strikes on wildlife, speed limits will not exceed 15 miles per hour when driving on access roads. All vehicles required for O&M must remain on designated access/maintenance roads.
- Avoid night-time construction lighting or if nighttime construction cannot be avoided use shielded directional lighting pointed downward and towards the interior of the project site, thereby avoiding illumination of adjacent natural areas and the night sky.
- All construction equipment used for the Project will be equipped with properly operating and maintained mufflers.

- Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel hand-held equipment, will be stored within secondary containment when within 50 feet of open water to the fullest extent practicable. Secondary containment will consist of a ring of sand bags around each piece of stored equipment/structure. A plastic tarp/visqueen lining with no seams shall be placed under the equipment and over the edges of the sandbags, or a plastic hazardous materials secondary containment unit shall be utilized by the Contractor.
- The Contractor will be required to conduct vehicle refueling in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species. Any fuel containers, repair materials, including creosote-treated wood, and/or stockpiled material that is left on site overnight, will be secured in secondary containment within the work area and staging/assembly area and covered with plastic at the end of each work day.
- In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor will ensure that all portable fuel containers are removed from the project site.
- All equipment will be maintained in accordance with manufacturer's recommendations and requirements.
- Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan or equivalent, Materials Safety Data Sheets, and any specifications required by other permits issued for the project.
- The Contractor will utilize off-site maintenance and repair shops as much as possible for maintenance and repair of equipment.
- If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment will be used to capture spills/leaks within all areas. Where feasible, maintenance of equipment will occur in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species.
- Appropriate BMPs will be used by the Contractor to control erosion and sedimentation and to capture debris and contaminants from bridge construction to prevent their deposition in waterways. No sediment or debris will be allowed to enter the creek or other drainages. All debris from construction of the bridge will be contained so that it does not fall into channel. Appropriate BMPs will be used by the Contractor during construction to limit the spread of resuspended sediment and to contain debris.
- Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.
- Firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment.

- Cross-country vehicle and equipment use outside of approved designated work areas and access roads shall be prohibited to prevent unnecessary ground and vegetation disturbance.
- Any injured or dead wildlife encountered during project-related activities shall be reported to the project biologist, biological monitor, CDFW, or a CDFW-approved veterinary facility as soon as possible to report the observation and determine the best course of action. For special-status species, the Project Biologist shall notify the County, USFWS, and/or CDFW, as appropriate, within 24 hours of the discovery.
- Stockpiling of material will be allowed only within established work areas.
- Actively manage the spread of noxious weeds (See Mitigation Measure BIO-5)
- The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving.

7.2.2 Special Status Wildlife Species (Desert Tortoise)

A. **Potential Impact.** The proposed project site occurs on the western margin of the known range of the federally and state-threatened desert tortoise and supports marginally suitable habitat for the species. Although the Coachella Canal, located approximately 0.8 mile to the northeast of the project site, provides a substantial barrier to tortoise movement, it is porous in that there are periodic gaps in the above ground canal for vehicle traffic and drainage.

Construction. If desert tortoise is present on or in the vicinity of the project site, grading and vehicular traffic could crush and kill individual tortoises or tortoises could become trapped in open trenches and may be killed due to an increased exposure to predators or extreme weather. Indirect impacts from construction would include the long-term loss of 115.4 acres of habitat and could include an increase in desert tortoise predators such as ravens and crows drawn to the project site by ground disturbing activities that expose wildlife and produce carcasses and waste for scavenging. Due to its threatened status, any direct or indirect impacts on this species resulting from construction would be considered significant.

Operation. Although vehicular traffic will be minimal because maintenance requirements are minimal, the risk of a vehicle striking a desert tortoise on site or an access road to the site remains if desert tortoise is present. Also, security fencing could pose a trapping hazard. Additionally, should the solar panels, gen-tie line, or auxiliary facilities pose a strike hazard for birds or bats, the resulting carcasses could lead to an increase in scavenger density. As described above, those scavengers pose a threat to desert tortoise. As indicated above, due to its threatened status, any direct or indirect impacts on this species resulting from operation would be considered significant.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Facts in Support of Finding. Based on the analysis provided in Section 3.4 of the Final EIR, the project's potentially significant impact would be mitigated to below a

level of significance with implementation of Mitigation Measures BIO-2, BIO-3, BIO-4 and BIO-5 of the Final EIR as identified below. Mitigation Measure BIO-2 includes general impact avoidance and minimization measures such as designating a project biologist to oversee compliance with protecting measures for biological resources, delineating the boundaries of all areas to be newly disturbed, setting a speed limit of 15 miles per hour when driving on access roads, and avoiding wildlife entrapment by requiring all pipes or other construction materials or supplies to be covered or capped in storage or laydown areas. Mitigation Measure BIO-3 requires a qualified biologist to implement a worker environmental awareness program to educate construction personnel on special-status biological resources on the project site. Mitigation Measure BIO-4 requires a qualified biologist to conduct a focused presence/absence surveys for desert tortoise and implementing minimization and compensatory measures if live desert tortoise or sign of active desert tortoise is detected on the project site. Such measures include permanent tortoise-proof fencing; conducting pre-construction clearance surveys along all existing and new dirt access road alignments, and the Gen-tie alignment before any ground disturbing activities are initiated and prior to the start of construction activities each day during ground-disturbing activities and weekly thereafter; and compensatory mitigation at a ratio of 1:1. Mitigation Measure BIO-5 requires the preparation and implementation of an Operation and Maintenance Worker Education Plan to advise personnel on general operations measures (i.e., speed limits, prohibiting travel outside of the project footprint, keeping the project site clear of trash to avoid wildlife attractants, and inspection of the ground beneath all parked equipment and vehicles for wildlife before moving).

Mitigation Measure BIO-2 General Impact Avoidance and Minimization Measures

(listed and described above)

Mitigation Measure BIO-3 Worker Environmental Awareness Program

Prior to project construction, a Worker Environmental Awareness Program shall be developed and implemented by a qualified biologist, and shall be available in both English and Spanish. Handouts summarizing potential impacts to special-status biological resources and the potential penalties for impacts to these resources shall be provided to all construction personnel. At a minimum, the education program shall including the following:

- the purpose for resource protection;
- a description of special status species including representative photographs and general ecology;
- occurrences of USACE, RWQCB, and CDFW regulated features in the Project study area;
- regulatory framework for biological resource protection and consequences if violated
- sensitivity of the species to human activities;
- avoidance and minimization measures designed to reduce the impacts to special-status biological resources

- environmentally responsible construction practices;
- reporting requirements;
- the protocol to resolve conflicts that may arise at any time during the construction process; and
- workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed and would be kept on record.

Mitigation Measure BIO-4 Desert Tortoise Avoidance and Minimization

A qualified biologist shall conduct focused presence/absence surveys for Desert Tortoise for 100-percent of the project footprint pursuant to the October 19, 2019 Version of the USFWS Desert Tortoise Survey Protocol. If no live desert tortoise or sign of active desert tortoise are detected, no further avoidance and minimization is required.

If live desert tortoise or sign of active desert tortoise are detected, the project proponent shall initiate consultation with USFWS and CDFW to obtain the necessary federal and state ESA authorizations and the following avoidance, minimization and compensatory mitigation measures will be implemented:

- Permanent tortoise-proof fencing shall be along the perimeter of the project site. Fencing shall be installed, inspected, and maintained according to specifications in the current USFWS *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)*. An authorized desert tortoise biologist shall conduct pre-construction clearance surveys for the project site no more than 14-days prior to the initiation of fence installation. All potentially active burrows shall be identified for hand excavation. Pre-construction clearance surveys shall be repeated within the fenced impact area after fence installation is complete. If desert tortoise are observed they shall be relocated from within the work area to outside the fenced area by a permitted biologist.
- The authorized biologist shall conduct desert tortoise pre-construction clearance surveys along all existing and new dirt access road alignments, and the Gen-tie alignment before any ground disturbing activities are initiated and prior to the start of construction activities each day during ground-disturbing activities and weekly thereafter. Relocate desert tortoises as necessary. Any handling of special-status species must be approved by the appropriate Federal and State agencies and be done in accordance with species-specific handling protocols.
- Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of the authorized biologists with demonstrated prior experience with this species.
- Inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat, before the materials are moved, buried, or capped.
- Incorporate Raven Management into the Pest Control Plan (See BIO-5)

- Inspect the ground under vehicles and equipment for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, an authorized biologist or biological monitor under the direction of the authorized biologist may remove and relocate the animal to a safe location.
- All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages. If possible, pipes and culverts greater than 3 inches in diameter would be stored on dunnage to prevent wildlife from taking refuge in them, to the extent feasible.
- To fully mitigate for habitat loss and potential take of the Mojave desert tortoise, the Applicant will provide compensatory mitigation at a ratio of 1:1. For the purposes of this measure, the project site (i.e., footprint) means all Project areas with new direct ground disturbance during construction and operation of the Project. This includes all lands directly disturbed that will no longer provide viable long-term habitat for the Mojave desert tortoise, such as the solar field, substation and new access roads. Areas within the gen-tie line corridor where no ground disturbance will occur are not included in the area to be mitigated through compensation. Compensatory mitigation could include agency-approved payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on preservation lands; or a combination of the three.

Mitigation Measure BIO-5 Prepare and Implement an Operation and Maintenance Worker Education Plan

An Operation and Maintenance Worker Education Plan shall be prepared to advise personnel on general operations measures. The Worker Education Plan shall be submitted to the County of Imperial Planning and Development Services Department for review and approval prior to issuance of building permits. The following provisions shall be included in the Worker Education Plan and implemented throughout the operational lifespan of the Project: Operation and maintenance personnel shall be prohibited from:

- Exceeding nighttime and daytime vehicle speeds of 10 miles per hour and 25 miles per hour, respectively, within the facility, on access roads and within the Gen-Tie line corridor. Speed limit signs shall be posted throughout the project site to remind workers of travel speed restrictions.
- Harming, harassing, or feeding wildlife and/or collecting special-status plant or wildlife species.
- Disturbing active avian nests
- Traveling (either on foot or in a vehicle) outside of the Project footprint except on public roads.

- Littering on the Project area.
- Allowing persons not employed at the facility to remain on site after daylight hours.
- Exceeding normal nighttime operational noise or lighting levels
- Bringing domestic pets and firearms to the site.

The Operation and Maintenance Worker Education Plan shall require that:

- All operation and maintenance vehicles and equipment park in approved designated areas only.
- The project site and Gen-Tie line corridor be kept clear of trash and other litter to reduce the attraction of opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species.
- Operation and maintenance employees maintain Hazardous Materials Spill Kits on-site. All operation and maintenance staff shall be trained in how to use Hazardous Materials Spill Kits in the event of a spill.
- An approved Long-Term Maintenance Plan for the retention/detention basins be developed and implemented.
- Weed and Raven management shall be addressed in a project-specific pest management plan (See BIO-5)
- Maintain shielding on external lighting to direct down and towards the project site and away from adjacent undeveloped land.
- Workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed and would be kept on record
- desert tortoise avoidance and minimization measures be implemented if desert tortoise is detected during pre-construction surveys
- The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving.
- Personnel are trained to avoid causing wildfires and manage them safely and promptly if necessary

7.2.3 Special Status Wildlife Species (Burrowing Owl)

A. **Potential Impact.** Although burrowing owls were not present on the project site during the biological surveys, the nearest recorded occurrence to the Biological Study Area (BSA) is less than 1 mile to the west and suitable nesting and foraging habitat is present within the project site.

Construction. If burrowing owls are present within or adjacent to the proposed project site, project construction could result in take, as defined by the California Fish and Game Code (CFG), if burrowing owl were trapped in burrows during grading activities or struck by vehicles. Additionally, take of an active breeding burrow complex would violate the Migratory Bird Treaty Act and California FGC Sections 3503, 3503.5, 3513

and 3800. Direct take of individual burrowing owl would be considered a significant impact.

Indirect impacts from construction activities, although not meeting the definition of take, could include changes in prey diversity and abundance, changes in visibility due to dust that could affect foraging effectiveness, increases in noise levels disrupting communication between individuals, an increased risk of wildfire and an increase in the density of potential predators due to ground disturbance and food waste at the project site.

Operation. Vehicles driving on access roads during operations and maintenance (O&M) activities within the solar fields and along the transmission line where burrowing owls are foraging may result in direct mortality of burrowing owl. Additionally, food waste, if not properly disposed of, could attract predators, further increasing predation risk if burrowing owl is present on or adjacent to the site. These impacts would be considered significant.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Section 3.4 of the Final EIR, the project's potentially significant impact would be mitigated to below a level of significance with implementation of Mitigation Measures BIO-2, BIO-3, BIO-5, and BIO-6 of the Final EIR as identified below. Mitigation Measure BIO-2 includes general impact avoidance and minimization measures such as designating a project biologist to oversee compliance with protecting measures for biological resources, delineating the boundaries of all areas to be newly disturbed, and requiring all trash and food-related waste be placed in self-closing containers to avoid wildlife attractants. Mitigation Measure BIO-3 requires a qualified biologist to implement a worker environmental awareness program to educate construction personnel on special-status biological resources on the project site. Mitigation Measure BIO-5 requires the preparation and implementation of an Operation and Maintenance Worker Education Plan to advise personnel on general operations measures (i.e., speed limits, prohibiting travel outside of the project footprint, and keeping the project site clear of trash to avoid wildlife attractants). Mitigation Measure BIO-6 require take avoidance (pre-construction) surveys for burrowing owl prior to project construction and identifies buffer distances in the event burrowing owl is identified on the project site.

Mitigation Measure BIO-2 General Impact Avoidance and Minimization Measures

(listed and described above)

Mitigation Measure BIO-3 Worker Environmental Awareness Program

(listed and described above)

Mitigation Measure BIO-5 Prepare and Implement an Operation and Maintenance Worker Education Plan

(listed and described above)

Mitigation Measure BIO-6 Burrowing Owl Avoidance and Minimization

Take Avoidance (pre-construction) surveys for burrowing owl shall be completed prior to project construction. Surveys shall be conducted as detailed within Appendix D of the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game [CDFG] 2012). If burrowing owl is not detected, construction may proceed.

- If burrowing owl is identified during the non-breeding season (September 1 through January 31), then a 50 meter buffer will be established by the biological monitor. Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until a CDFW-approved exclusion plan has been implemented. The buffer distance may be reduced if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities.
- If burrowing owl is identified during the breeding season (February 1 through August 31), then an appropriate buffer will be established by the biological monitor in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until young have fledged. The buffer distance may be reduced in consultation with CDFW if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities.

7.2.4 Other Special Status Bird Species

A. **Potential Impact.** Loggerhead shrike, Crissal thrasher, Le Conte's thrasher and black-tailed gnatcatcher have potential to reside on the project site while merlin has potential to forage on-site.

Construction. Take of active avian nests (including loggerhead shrike, Crissal thrasher, Le Conte's thrasher and black-tailed gnatcatcher, should they reside on the project site) during clearing and grubbing would be considered adverse and significant.

Operation. A potentially significant impact may occur to avian mortality during operations should avian species protected by California FGC collide with solar panels or any ancillary facilities such as the Gen-tie line.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Section 3.4 of the Final EIR, the project's potentially significant impacts would be mitigated to below a level of significance with implementation of Mitigation Measures BIO-5, BIO-7, and BIO-8 of the Final EIR as identified below. Mitigation Measure BIO-5 requires the preparation and implementation of an Operation and Maintenance Worker Education Plan to advise personnel on general operations measures (i.e., prohibiting the disturbance of active avian nests; prohibiting harming, harassing, or feeding wildlife species, and prohibiting travel outside of the project footprint). Mitigation Measure BIO-7 requires pre-construction nesting bird surveys if construction must occur during the general avian breeding season. If native birds are nesting on the site, then construction will be postponed until nesting is completed or the project biologist will designate

appropriate avoidance buffers around nests to protect nesting birds. Mitigation Measure BIO-8 requires the project applicant to develop a bird and bat conservation strategy, which includes measures to avoid, minimize, reduce or eliminate avian injury or mortality during all phase of the project, a post-construction monitoring plan, and an injured bird response plan that delineates care and curation of any and all injured birds.

Mitigation Measure BIO-5 Prepare and Implement an Operation and Maintenance Worker Education Plan

(listed and described above)

Mitigation Measure BIO-7 Pre-Construction Nesting Bird Surveys

To the extent possible, construction shall occur outside the typical avian breeding season (February 15 through September 15). If construction must occur during the general avian breeding season, a pre-construction nest survey shall be conducted within the impact area and a 500-foot (150-meter) buffer by qualified biologist no more than 7 days prior to the start of vegetation clearing and/or ground disturbing construction activities in any given area of the Project footprint. Construction crews shall coordinate with the qualified biologist at least 7 days prior to the start of construction in a given area to ensure that the construction area has been adequately surveyed. A nest is defined as active once birds begin constructing or repairing the nest in readiness for egg-laying. A nest is no longer an “active nest” if abandoned by the adult birds or once nestlings or fledglings are no longer dependent on the nest. If no active nests are discovered, construction may proceed. If active nests are observed that could be disturbed by construction activities, these nests and an appropriately sized buffer (typically a 200-foot (61-meter) buffer for non-raptor species nests and at least a 500-foot (150-meter) buffer for raptor or federally listed species nests) would be avoided until the young have fledged. Final construction buffers or setback distances shall be determined by the qualified biologist in coordination with USFWS and CDFW on a case-by-case basis, depending on the species, season in which disturbance shall occur, the type of disturbance, and other factors that could influence susceptibility to disturbance (e.g., topography, vegetation, existing disturbance levels, etc.). Active nests shall be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated to the nesting birds or their young. If vegetation clearing and/or ground disturbing activities cease for 14 or more consecutive days during the nesting season in areas where suitable nesting habitat remains, repeat nesting bird surveys shall be required to ensure new nesting locations have not been established within the impact area and the defined buffers.

Mitigation Measure BIO-8 Develop a Bird and Bat Conservation Strategy (BBCS)

A BBCS shall be developed by the Project Applicant in coordination with the County of Imperial, USFWS, and CDFW.

The BBCS will include the following components:

- A description and assessment of the existing habitat and avian and bat species;

- An avian and bat risk assessment and specific measures to avoid, minimize, reduce, or eliminate avian and bat injury or mortality during all phases of the project.
- A post-construction monitoring plan that will be implemented to assess impacts on avian and bat species resulting from the Project.
- The post-construction monitoring plan will include a description of standardized carcass searches, scavenger rate (i.e., carcass removal) trials, searcher efficiency trials, and reporting. Statistical methods will be used to estimate Project avian and bat fatalities if sufficient data is collected to support statistical analysis.
- An injured bird response plan that delineates care and curation of any and all injured birds.
- A nesting bird management strategy to outline actions to be taken for avian nests detected within the impact footprint during operation of the Project.
- A conceptual adaptive management and decision-making framework for reviewing, characterizing, and responding to monitoring results.
- Monitoring studies following commencement of commercial operation of each CUP area. Monitoring results will be reviewed annually by the Applicant and the County of Imperial, in consultation with CDFW and USFWS, to inform adaptive management responses. During Project construction, incidental avian carcasses or injured birds found during construction shall be documented. Should a carcass be found by Project personnel, the carcass shall be photographed, the location shall be marked, the carcass shall not be moved, and a qualified biologist shall be contacted to examine the carcass. When a carcass is detected, the following data shall be recorded (to the extent possible): observer, date/time, species or most precise species group possible, sex, age, estimated time since death, potential cause of death or other pertinent information, distance and bearing to nearest structure (if any) that may have been associated with the mortality, location (recorded with Global Positioning System), and condition of carcass.
- If any federal listed, state listed or fully protected avian carcasses or injured birds are found during construction or post-construction monitoring, the Project Applicant shall notify USFWS and CDFW within 24 hours via email or phone and work with the resource agencies to determine the appropriate course of action for these species. For such listed species, the CUP owner shall obtain or retain a biologist with the appropriate USFWS Special Purpose Utility Permit(s) and CDFW Scientific Collecting Permit(s) to collect and salvage all dead and injured birds, and store/curate them in freezers for later disposition and analysis.

7.2.5 Special Status Mammal Species (American Badger)

A. **Potential Impact.** American badger has potential to reside on the project site. Take of American Badger if residing on the project site and trapped in a burrow during grading would be considered significant.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Section 3.4 of the Final EIR, the project's potentially significant impact would be mitigated to below a level of significance with implementation of Mitigation Measure BIO-9 of the Final EIR as identified below. Mitigation Measure BIO-9 requires a qualified biologist to conduct preconstruction surveys to determine the presence of American badger dens on the project site. If potential dens are observed on the site, buffer distances will be established prior to construction activities. If avoidance of the potential dens is not possible, measures are required to avoid potential adverse effects to the American badger such as an onsite passive relocation program.

Mitigation Measure BIO-9 Pre-Construction Surveys for American Badger

Preconstruction surveys shall be conducted by a qualified biologist for the presence of American badger dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for American badger, which include desert scrub habitats. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the project site disturbed. If potential dens are observed and avoidance is feasible, the following buffer distances shall be established prior to construction activities:

- American badger potential den: 30 feet.
- American badger active den: 100 feet.
- American badger natal den: 500 feet.
- If avoidance of the potential dens is not possible, the following measures are required to avoid potential adverse effects to the American badger
- Outside the reproductive season defined as February 1 through September 30 for American badger if the qualified Lead Biologist determines through camera monitoring for three consecutive days that potential dens are inactive, the biologist shall excavate these dens by hands with a shovel to prevent American badgers from re-using them during construction.
- Outside of the reproductive season defined as February 1 through September 30 for American badger if the Lead Biologist determines that potential dens may be active, an onsite passive relocation program shall be implemented. This program shall consist of excluding American badgers from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for seven days to confirm usage has discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that American badgers have stopped using the dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent use during construction.

7.2.6 Special Status Mammal Species (Bats)

A. **Potential Impact.** Western mastiff bat and pocketed free-tailed bat have potential to forage on-site. A potentially significant impact may occur to bat mortality during operations should bat species collide with solar panels or any ancillary facilities such as the Gen-tie line.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Section 3.4 of the Final EIR, the project's potentially significant impact would be mitigated to below a level of significance with implementation of Mitigation Measures BIO-5 and BIO-8 of the Final EIR as identified below. Mitigation Measure BIO-5 requires the preparation and implementation of an Operation and Maintenance Worker Education Plan to advise personnel on general operations measures (i.e. prohibiting harming, harassing, or feeding wildlife species, and prohibiting travel outside of the project footprint). Mitigation Measure BIO-8 requires the project applicant to develop a bird and bat conservation strategy, which includes measures to avoid, minimize, reduce or eliminate avian injury or mortality during all phase of the project, a post-construction monitoring plan, and an injured bird response plan that delineates care and curation of any and all injured birds.

Mitigation Measure BIO-5 Prepare and Implement an Operation and Maintenance Worker Education Plan

(listed and described above)

Mitigation Measure BIO-8 Develop a Bird and Bat Conservation Strategy (BBCS)

(listed and described above)

7.2.7 Possible Impact on Riparian Habitats or Other Sensitive Natural Communities

A. **Potential Impact.** The proposed project results in the direct long-term (20-25-year) loss of riparian Blue Palo Verde-Ironwood Woodland associated with the northwestern wash where on-site drainage will be discharged. The ephemeral washes on site may also be regulated by USACE and RWQCB pursuant to the Clean Water Act, RWQCB pursuant to the Porter-Cologne Act and CDFW pursuant to California FGC Section 1600.

Construction. Construction on the proposed project would result in long-term (20-25 year) discharge of fill to 6.00 acres of potential Waters of the U.S. and 8.20 acres CDFW State Waters and temporary discharge of fill to 0.07 acre of potential USACE non-wetland Waters of the U.S. and 0.10 acre of CDFW State Waters. These impacts are considered significant.

The ephemeral washes and associated riparian habitat adjacent or downstream of the proposed project could be indirectly impacted by the introduction of non-native species that alter biogeomorphic function of the washes, alteration of drainage patterns and

introduction of pollutants such as sediment or hydrocarbons into surface waters. These impacts would be considered significant.

The proposed project would have potential to introduce pest such as insects, vertebrates, weeds and plant pathogens. These pests would have potential to significantly adversely affect the adjacent Important Farmlands and are subject to management by the County's Agricultural Commissioner. These impacts would be considered significant.

Operation. Operation of the proposed project could also result in indirect impacts to ephemeral washes and associated riparian habitat adjacent or downstream of the proposed project could be indirectly impacted by the introduction of non-native species that alter biogeomorphic function of the washes, alteration of drainage patterns and introduction of pollutants such as sediment or hydrocarbons into surface waters.

B. **Finding**. Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

Facts in Support of Finding. Based on the analysis provided Section 3.4 of the Final EIR, the project's potentially significant impacts would be mitigated to below a level of significance with implementation of Mitigation Measures BIO-2, BIO-3, BIO-10, and BIO-11. Mitigation Measure BIO-2 includes general impact avoidance and minimization measures such as designating a project biologist to oversee compliance with protecting measures for biological resources, delineating the boundaries of all areas to be newly disturbed, proper storage of hazardous materials, conducting vehicle refueling in upland areas, and appropriate BMPs to limit the spread of resuspended sediment and to contain debris. Mitigation Measure BIO-3 requires a qualified biologist to implement a worker environmental awareness program to educate construction personnel on USACE, RWQCB, and CDFW regulated features in the project study area. Mitigation Measure BIO-10 requires compensatory mitigation for riparian woodland and ephemeral washes. Mitigation Measure BIO-11 requires the development and implementation of a pest management plan to reduce negative impacts to surrounding farmland during construction, operation, and reclamation of the project.

Mitigation Measure BIO-2 General Impact Avoidance and Minimization Measures

(listed and described above)

Mitigation Measure BIO-3 Worker Environmental Awareness Program

(listed and described above)

Mitigation Measure BIO-10 Compensatory Mitigation for Riparian Woodland and Ephemeral Wash

Following the completion of project construction, Palo Verde- Ironwood Woodland will be created, enhanced and or conserved within the undeveloped portions of the project site at a ratio of 3:1 (i.e., 3 acres created or enhanced for each acre impacted)by permanent or temporary project activities).

Permanent impacts to jurisdictional waters and wetlands shall be mitigated at a minimum 1:1 ratio either through on-site and/or off-site re-establishment, enhancement and conservation of jurisdictional waters or through an approved-mitigation bank or in lieu fee program, if one is available. The type of mitigation, mitigation location and the final mitigation ratios will be established during the permit process for the Project's USACE Section 404 permit, the RWQCB Section 401 Water Quality Certification, and a CDFW Streambed Alteration Agreement, as applicable.

Mitigation Measure BIO-11 Develop and Implement a Pest Management Plan

The Project shall develop and implement a Pest Management Plan that will reduce negative impacts to surrounding (not necessarily adjacent) farmland during construction, operation and reclamation. The Plan shall include:

- Methods for Preventing the Introduction and Spread of pests, including weeds.
- Monitoring methods for all agricultural pests and weeds with potential to adversely impact adjacent native habitat (Species on California Invasive Plants Council Inventory rated as Moderately to Highly Invasive) to including insects, vertebrates, weeds, and pathogens.
- Eradication and Control Methods All treatments must be performed by a qualified applicator or a licensed pest control business.
    - "Control" means to reduce the population of common pests below economically damaging levels, and includes attempts to exclude pests before infestation, and effective control methods after infestation.
    - Effective control methods may include physical/mechanical removal, biocontrol, cultural control, or chemical treatments.
    - Use of "permanent" soil sterilants to control weeds or other pests is prohibited due to the fact that this would interfere with reclamation.
- Notification Requirements:
    - Notify the Agricultural Commissioner's office immediately regarding any suspected exotic/invasive pest species as defined by the California Department of Food Agriculture (CDFA) and the USDA.
    - Request a sample be taken by the Agricultural Commissioner's Office of a suspected invasive species.
- Eradication of exotic pests will be done under the direction of the Agricultural Commissioner's Office and/or CDFA.
- Obey all pesticide use laws, regulations, and permit conditions.

- Allow access by Agricultural Commissioner staff for routine visual and trap pest surveys, compliance inspections, eradication of exotic pests, and other official duties.
- Ensure that all project employees that handle pest control issues are appropriately trained and certified, that all required records are maintained and available for inspection, and that all permits and other required legal documents are current.
- Maintain records of pests found and treatments or pest management methods used. Records should include the date, location/block, project name (current and previous if changed), and methods used. For pesticides include the chemical(s) used, EPA Registration numbers, application rates, etc. A pesticide use report may be used for this.
- Reporting Methods
    - Submit a report of monitoring, pest finds, and treatments, or other pest management methods to the Agricultural Commissioner quarterly within 15 days after the end of the previous quarter, and upon request.
    - The report is required even if no pests were found or treatment occurred. It may consist of a copy of all records for the previous quarter, or may be a summary letter/report as long as the original detailed records are available upon request.

7.2.8 Wildlife Movement

A. **Potential Impact.** The project site includes a Gen-tie line with which birds may collide as they move through the area. Significant impacts could occur if CDFW-regulated bird or bat species collide with the Gen-tie line.

B. **Finding**. Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

A. **Facts in Support of Finding.** Based on the analysis provided Section 3.4 of the Final EIR, the project's potentially significant impact would be mitigated to below a level of significance with implementation of Mitigation Measures BIO-5 and BIO-8. Mitigation Measure BIO-5 requires the preparation and implementation of an Operation and Maintenance Worker Education Plan to advise personnel on general operations measures (i.e., prohibiting the disturbance of active avian nests; prohibiting harming, harassing, or feeding wildlife species, and prohibiting travel outside of the project footprint). Mitigation Measure BIO-8 requires the project applicant to develop a bird and bat conservation strategy, which includes measures to avoid, minimize, reduce or eliminate avian injury or mortality during all phase of the project, a post-construction monitoring plan, and an injured bird response plan that delineates care and curation of any and all injured birds.

Mitigation Measure BIO-5 Prepare and Implement an Operation and Maintenance Worker Education Plan

(listed and described above)

Mitigation Measure BIO-8 Develop a Bird and Bat Conservation Strategy (BBCS)

(listed and described above)

7.3 Cultural Resources

7.3.1 Archaeological Resources

A. **Potential Impact.** Six cultural resources within the 640-acre survey area are recommended for listing in the CRHR. None of these cultural resources recommended for listing in the CRHR are located within the proposed 100-acre solar energy facility site, or along the proposed access roads, gen-tie, or fiber optic alignment. However, the proposed project includes ground-disturbing activities. As such, the project has the potential to disturb previously undocumented cultural resources that could qualify as unique archaeological resources pursuant to CEQA. This potential impact is considered significant.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Section 3.5 of the Final EIR, the project's potentially significant impact would be mitigated to below a level of significance with implementation of Mitigation Measures CR-1 and CR-2 of the Final EIR.

Mitigation Measure CR-1

Pursuant to CEQA Guidelines §15064.5(f), in the event that previously unidentified unique archaeological resources are encountered during construction or operational repairs, archaeological monitors will be authorized to temporarily divert construction work within 100 feet of the area of discovery until significance and the appropriate mitigation measures are determined by a qualified archaeologist familiar with the resources of the region.

Applicant shall notify the County within 24 hours. Applicant shall provide contingency funding sufficient to allow for implementation of avoidance measures or appropriate mitigation.

Mitigation Measure CR-2

In the event of the discovery of previously unidentified archaeological materials, the contractor shall immediately cease all work activities within approximately 100 feet of the discovery. After cessation of excavation, the contractor shall immediately contact the Imperial County Department of Planning and Development Services. Except in the case of cultural items that fall within the scope of the Native American Grave Protection and Repatriation Act, the discovery of any cultural resource within the project area shall not be grounds for a "stop work" notice or otherwise interfere with the project's continuation except as set forth in this paragraph.

In the event of an unanticipated discovery of archaeological materials during construction, the applicant shall retain the services of a qualified professional archaeologist, meeting the Secretary of the Interior's Standards for a Qualified Archaeologist, to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If the qualified archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the applicant shall implement an archaeological data recovery program.

7.3.2 Human Remains

A. **Potential Impact.** During the construction and operational phases of the proposed project, grading, excavation and trenching will be required. Although the potential for encountering subsurface human remains within the project site is low, there remains a possibility that human remains are present beneath the ground surface, and that such remains could be exposed during project construction. The potential to encounter human remains is considered a significant impact.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Section 3.5 of the Final EIR, the project's potentially significant impact to human remains would be mitigated to below a level of significance with implementation of Mitigation Measure CR-3, provided below from the Final EIR. This measure requires that construction be halted in the area where the remains are found and the procedures set forth in Section 7050.5 of the Health and Safety Code, Section 5097.98 of the PRC, and Section 5097.94 of the PRC be followed, as applicable.

Mitigation Measure CR-4

In the event that evidence of human remains is discovered, construction activities within 200 feet of the discovery will be halted or diverted and the Imperial County Coroner will be notified (Section 7050.5 of the HSC). If the Coroner determines that the remains are Native American, the Coroner will notify the NAHC, which will designate a MLD for the project (Section 5097.98 of the PRC). The designated MLD then has 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains (AB 2641). If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a document with the county in which the property is located (AB 2641).

7.4 Geology and Soils

7.4.1 Seismic Ground Shaking and Unstable Geologic Conditions

A. **Potential Impact.**

The closest mapped faults to the project site are the Elmore Ranch fault (approximately 8.8 miles) and the South San Andreas fault (approximately 13.1 miles). In the event of an earthquake along one of these fault sources, seismic hazards related to ground motion could occur in susceptible areas within the project site. The intensity of such an event would depend on the causative fault and the distance to the epicenter, the moment magnitude, and the duration of shaking.

Even with the integration of building standards, ground shaking within the project site could cause some structural damage to the facility structures or, at least, cause unsecured objects to fall. During a stronger seismic event, ground shaking could expose employees to injury from structural damage or collapse of electrical distribution facilities. Given the potentially hazardous nature of the project facilities, the potential impact of ground motion during an earthquake is considered a significant impact, as proposed structures, such as the substation and transmission lines could be damaged.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Section 3.6 of the Final EIR, the project's potentially significant impact would be mitigated to below a level of significance with implementation of Mitigation Measure GEO-1 of the Final EIR. This measure includes preparing geotechnical reports and implementing required measures.

Mitigation Measure GEO-1 Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.

Facility design for all project components shall comply with the site-specific design recommendations as provided by a licensed geotechnical or civil engineer to be retained by the project applicant. The final geotechnical and/or civil engineering report shall address and make recommendations on the following:

- Site preparation
- Soil bearing capacity
- Appropriate sources and types of fill
- Potential need for soil amendments
- Structural foundations
- Grading practices
- Soil corrosion of concrete and steel
- Erosion/winterization

- Seismic ground shaking
- Liquefaction
- Expansive/unstable soils

In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include subsurface testing of soil and groundwater conditions, and shall determine appropriate foundation designs that are consistent with the version of the CBC that is applicable at the time building and grading permits are applied for. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicant. The final geotechnical and/or civil engineering report shall be submitted to Imperial County Public Works Department, Engineering Division for review and approval prior to issuance of building permits.

7.4.2 Construction Related Erosion

A. **Potential Impact.** During the site grading and construction phases, large areas of unvegetated soil would be exposed to erosive forces by water or wind for extended periods of time. Unvegetated soils are much more likely to erode from precipitation than vegetated areas because plants act to disperse, infiltrate, and retain water. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and grading activities could result in increased erosion and sedimentation to surface waters. The predominately coarse-grained soils underlying the site are potentially susceptible to erosion or the loss of topsoil due to surface water flows. If precautions are not taken to contain contaminants, construction-related erosion impacts are considered significant.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Section 3.6 of the Final EIR, the project's potentially significant impact would be mitigated to below a level of significance with implementation of Mitigation Measure GEO-1, and Mitigation Measure HYD-1 of the Final EIR (refer to Final EIR Section 3.8 Hydrology/Water Quality). Mitigation Measure HYD-1 requires that soil stabilization and erosion control practices (e.g., hydroseeding, erosion control blankets, mulching) are implemented during the construction phase.

7.4.3 Paleontological Resources

A. **Potential Impact.** The project site is generally underlain by Quaternary Lake Deposits. Sediments from this formation have yielded fossilized remains of continental vertebrates, invertebrates, and plants at numerous previously recorded fossil sites in the Imperial Valley. Therefore, the paleontological sensitivity of these formations within the project site is considered to be high. However these units exist at depths that exceed the proposed project construction activities (i.e., sensitive layers exist at 30 feet and deeper). Therefore, the possibility of encountering paleontological resources during construction is low.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Finding.** Based on the analysis provided in Section 3.6 of the Final EIR, Mitigation Measure GEO-2 would ensure that the potential impacts on paleontological resources do not rise to the level of significance pursuant to CEQA. Mitigation Measure GEO-2 requires that in the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the project site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.

Mitigation Measure GEO-2 Paleontological Resources

In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the project site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.

7.5 Hydrology and Water Quality

7.5.1 Violation of Water Quality Standards during Construction

A. **Potential Impact.** During the construction phase, sedimentation and erosion can occur because of tracking from earthmoving equipment, erosion and subsequent runoff of soil, and improperly designed stockpiles. The utilization of proper erosion and sediment control BMPs is critical in preventing discharge to surface waters/drains.

In addition to erosion and sedimentation, many different types of hazardous compounds will be used during the construction phase, with proper application, management, and containment being of high importance. Poorly managed

construction materials can lead to the possibility for exposure of potential contaminants to precipitation. When this occurs, these visible and/or non-visible constituents become entrained in storm water runoff. If they are not intercepted or are left uncontrolled, the polluted runoff would otherwise freely sheet flow from the project to the IID Imperial Valley Drains and could cause pollution accumulation of these pollutants in the receiving waters. This is considered a potentially significant impact.

A. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

B. **Facts in Support of Finding.** Based on the analysis provided in Section 3.8 of the Final EIR, the project's potentially significant impact would be mitigated to below a level of significance with implementation of Mitigation Measures HYD-1 of the Final EIR. Prior to construction and grading activities, the project applicant is required to file an NOI with the SWRCB to comply with the General NPDES Construction Permit and prepare a SWPPP, which addresses the measures that would be included during construction or the project to minimize and control construction and post-construction runoff to the "maximum extent practicable." In addition, NPDES permits require the implementation of BMPs that achieve a level of pollution control to the maximum extent practical. With the implementation of Mitigation Measures HYD-1, impacts on surface water quality as attributable to the project would be reduced to a less than significant level through the inclusion of focused BMPs for the protection of surface water resources. Monitoring and contingency response measures would be included to verify compliance with water quality objectives for all surface waters crossed during construction. In addition, given that site decommissioning would result in similar activities as identified for construction, these impacts could also occur in the future during site restoration activities.

Mitigation Measure HYD-1 Prepare SWPPP and Implement BMPs Prior to Construction and Site Restoration.

The project applicant or its contractor shall prepare a SWPPP specific to the project and be responsible for securing coverage under SWRCB's NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ). The SWPPP shall identify specific actions and BMPs relating to the prevention of stormwater pollution from project-related construction sources by identifying a practical sequence for site restoration, BMP implementation, contingency measures, responsible parties, and agency contacts. The SWPPP shall reflect localized surface hydrological conditions and shall be reviewed and approved by the appropriate agency prior to commencement of work and shall be made conditions of the contract with the contractor selected to build and decommission the project. The SWPPP shall incorporate control measures in the following categories:

- Soil stabilization and erosion control practices (e.g., hydroseeding, erosion control blankets, mulching)
- Sediment control practices (e.g., temporary sediment basins, fiber rolls)
- Temporary and post-construction on- and off-site runoff controls

- Special considerations and BMPs for water crossings and drainages
- Monitoring protocols for discharge(s) and receiving waters, with emphasis place on the following water quality objectives: dissolved oxygen, floating material, oil and grease, potential of hydrogen (pH), and turbidity
- Waste management, handling, and disposal control practices
- Corrective action and spill contingency measures
- Agency and responsible party contact information
- Training procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP

The SWPPP shall be prepared by a Qualified SWPPP Practitioner and/or Qualified SWPPP Developer with BMPs selected to achieve maximum pollutant removal and that represent the best available technology that is economically achievable. Emphasis for BMPs shall be placed on controlling discharges of oxygen-depleting substances, floating material, oil and grease, acidic or caustic substances or compounds, and turbidity. BMPs for soil stabilization and erosion control practices and sediment control practices will also be required. Performance and effectiveness of these BMPs shall be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (inadvertent petroleum release) is required to determine adequacy of the measure.

7.5.2 Violation of Water Quality Standards during Operation

A. **Potential Impact**. As runoff flows over developed surfaces, water can entrain a variety of potential pollutants including, but not limited to, oil and grease, pesticides, trace metals, and nutrients. These pollutants can become suspended in runoff and carried to receiving waters. These effects are commonly referred to as non-point source water quality impacts.

   Long-term operation of the solar facility poses a limited threat to surface water quality after the completion of construction. The project would be subject to the County's Grading Regulations as specified in Section 91010.02 of the Ordinance Code. However, since the project site is located in unincorporated Imperial County and not subject to a Municipal Separate Storm Sewer System or NPDES General Industrial Permit, there is no regulatory mechanism in place to address post-construction water quality concerns.

B. **Finding.** Pursuant to CEQA Guidelines §15091 (a)(1), changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the FEIR.

C. **Facts in Support of Findings.** Based on the analysis provided in Section 3.8 of the Final EIR, the project's potentially significant impact would be mitigated to below a level of significance with implementation of Mitigation Measure HYD-2 of the Final EIR. The study area is located in unincorporated Imperial County and not subject to a Municipal Stormwater (MS4) Permit, which requires the implementation of post-construction stormwater BMPs to achieve pollutant removal to the maximum extent

practicable. The implementation of the prescribed mitigation would incorporate post-construction runoff BMP's into the Project Drainage Plan. The proposed project will be designed to include site design, source control, and treatment control BMPs, as described below. The use of source control, site design, and treatment BMPs would result in a decrease potential for storm water pollution.

Mitigation Measure HYD-2 Incorporate Post-Construction Runoff BMPs into Project Drainage Plan.

The project Drainage Plan shall adhere to the County's Engineering Guidelines Manual, IID "Draft" Hydrology Manual, or other recognized source with approval by the County Engineer to control and manage the on- and off-site discharge of stormwater to existing drainage systems. Infiltration basins will be integrated into the Drainage Plan to the maximum extent practical. The Drainage Plan shall provide both short- and long-term drainage solutions to ensure the proper sequencing of drainage facilities and management of runoff generated from project impervious surfaces as necessary.

8 Cumulative Impacts

As analyzed in Chapter 6 of the Final EIR, cumulative impacts to air quality, cultural resources, and hydrology/water quality, would be significant prior to implementation of project specific mitigation measures, and mitigation that would be required of other cumulative projects.

Air Quality

Construction. The proposed project would generate air emissions due to vehicle and dust emissions associated with construction activities. Similar effects would also be realized upon site decommissioning, which would be carried out in conjunction with the project's restoration plan, and subject to applicable ICAPCD standards. Likewise, the other cumulative projects that are approved, but not yet built (Chocolate Mountain Solar, Midway Solar Farm IV, Calipatria Solar Farm I [Lindsey Solar], and Calipatria Solar Farm [Wilkinson Solar] or pending entitlement (Nider Solar Project) identified in Final EIR Table 5-1 would result in the generation of air emissions during construction activities.

With respect to the proposed project, during the construction and decommissioning phases, the project would generate PM_{10}, $PM_{2.5}$, ROG, CO, and NO_X emissions during each active day of construction.

As discussed in Section 3.3, Air Quality, the project would not result in a significant increase in CO, ROG, and NO_X that would exceed ICAPCD thresholds.

However, the project's impact could be cumulatively considerable because: (1) portions of the SSAB are nonattainment already (PM_{10} and $PM_{2.5}$), although mitigated by ICAPCD Regulations; and, (2) project construction would occur on most days, including days when O_3 already in excess of state standards. Additionally, the effects would again be experienced in the future during decommissioning in conjunction with site restoration.

The proposed project, in conjunction with the construction of other cumulative projects as identified in Final EIR Table 5-1 (Nider Solar Project, Chocolate Mountain Solar, Midway Solar Farm IV, Calipatria Solar Farm I [Lindsey Solar], and Calipatria Solar Farm [Wilkinson Solar]), could result in a cumulatively considerable increase in the generation of PM_{10} and NO_x; however, like the proposed

project, cumulative projects would be subject to mitigation as pursuant to County ICAPCD's Regulations and Rules, and the cumulative impact would be reduced to a level less than significant through compliance with these measures. Because the project will be required to implement measures consistent with ICAPCD regulations designed to alleviate the cumulative impact associated with PM_{10}, the proposed project's contribution is rendered less than cumulatively considerable and is therefore, less than significant.

Operation. As the proposed project would have no major stationary emission sources and would require minimal vehicular trips, operation of the proposed solar facility would result in substantially lower emissions than project construction. The project's operational emissions would not exceed the Tier I thresholds; therefore, the impact would be less than significant. Operational impacts of other renewable energy facilities identified in Table 5-1 would also be similar. Although these cumulative projects generally involve large areas, their operational requirements are very minimal, requiring minimal staff or use of machinery or equipment that generate emissions. Further, alternative energy projects, such as the project, would assist attainment of regional air quality standards and improvement of regional air quality by providing clean, renewable energy sources. Consequently, the projects would provide a positive contribution to the implementation of applicable air quality plan policies and compliance with EO S-3-05.

However, from a cumulative air quality standpoint, the potential cumulative impact associated with the generation of PM_{10} and $PM_{2.5}$ emissions during operation of the cumulative projects is a consideration because of the fact that Imperial County is classified as a "serious" non-attainment area for PM_{10} and a "moderate" non-attainment area for 8-hour O_3 for the NAAQS and non-attainment for $PM_{2.5}$ for the urban areas of Imperial County. As previously indicated, the project is not located within the nonattainment boundaries for $PM_{2.5}$. The project's operational contribution to PM_{10} is below a level of significance. As with the construction phases, the cumulative projects would be required to comply with ICAPCD's Regulation VIII for dust control (Regulation VIII applies to both the construction and operational phases of projects). As a result, the ICAPCD would require compliance with the various dust control measures and, in addition be required to prepare and implement operational dust control plans as approved by the ICAPCD, which is a component of ICAPCD's overall framework of the AQAP for the SSAB, which sets forth a comprehensive program that will lead the SSAB into compliance with all federal and state air quality standards. Therefore, the project would not contribute to long-term cumulatively considerable air quality impacts and the project would not result in cumulatively significant air quality impacts, and cumulative impacts would be less than significant.

Biological Resources

The geographic scope for considering cumulative impacts on biological resources includes the Imperial Valley and related biological habitats. Final EIR Table 5-1 lists the projects considered for the biological resources cumulative impact analysis.

In general terms, in instances where a potential impact could occur, CDFW and USFWS have promulgated a regulatory scheme that limits impacts on these species. The effects of the project would be rendered less than significant through mitigation requiring compliance with all applicable regulations that protect plant, fish, and animal species, as well as waters of the U.S. and state. Other cumulative projects would also be required to avoid impacts on special-status species and/or mitigate to the satisfaction of the CDFW and USFWS for the potential loss of habitat. As described in Section 3.4, Biological Resources, the project has the potential to result in impacts on biological resources. These impacts are generally focused on potential construction-related effects to burrowing owl, bird species, and bats (foraging only).

Burrowing Owls are protected by the CDFW mitigation guidelines for burrowing owl (CDFW 2012) and Consortium guidance (1993), which require a suite of mitigation measures to ensure direct effects to burrowing owls during construction activities are avoided and indirect effects through burrow destruction and loss of foraging habitat are mitigated at prescribed ratios. Mitigation measures identified in Section 3.4, Biological Resources, contain these requirements thereby minimizing potential impacts on these species to a less than significant level. Additionally, as provided in Section 3.4, Biological Resources, special-status bird species have a potential to be present. In addition, several common bird species could nest on the project site. As a result of project-related construction activities, one or more of these species could be harmed. However, with the implementation of mitigation as identified in Section 3.4, Biological Resources, these impacts would be reduced to a level of less than significant. Similarly, the cumulative projects within the geographic scope of the project would be required to comply with the legal framework as described above. Based on these considerations, impacts on biological resources would not be cumulatively considerable.

As with the proposed project, each of the cumulative projects would be required to provide mitigation for impacts on biological resources. The analysis below is conducted qualitatively and in the context that the cumulative projects would be subject to a variety of statutes and administrative frameworks that require mitigation for impacts on biological resources.

Birds listed at 50 CFR 10.3 are protected by the MBTA (16 USC 703 et seq.), a Federal statute that implements treaties with several countries on the conservation and protection of Birds listed at 50 CFR 10.3 are protected by the MBTA (16 USC 703 et seq.), a Federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The MBTA is enforced by USFWS. This act prohibits the killing of any migratory birds without a valid permit. Any activity which contributes to unnatural migratory bird mortality could be prosecuted under this act. With few exceptions, most birds are considered migratory under this act. Raptors and active raptor nests are protected under California FGCs 3503.5, 3503, and 3513.

The CWA and California's Porter-Cologne Water Quality Control Act provide protection for water-related biological resources by controlling pollution, setting water quality standards, and preventing jurisdictional streams, lakes, and rivers from being filled without a federal permit. Two types of jurisdictional features were documented within the BSA: USACE non-wetland Waters of the U.S. and CDFW State Waters. These drainages ultimately flow into the Salton Sea, which is considered a Traditionally Navigable Water. As such, these drainage features would likely be considered federally and state jurisdictional. Consultation will be initiated with USACE and CDFW to avoid or minimize impacts upon federally and state jurisdictional drainage features.

The proposed project would comply with these and other laws, regulations and guidelines and therefore would not contribute substantially to a cumulative biological resources impact. Similarly, the cumulative projects within the geographic scope of the proposed project will be required to comply with the legal frameworks set forth above, as well as others, and will be required to mitigate their impacts to a less than significant level. Therefore, the project would not contribute to a cumulatively considerable impact to biological resources, and cumulative impacts would be less than significant.

Cultural Resources

As discussed in Section 3.5, Cultural Resources, no historical resources were identified within the project site. Therefore, the proposed project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines and no impact would occur.

The potential of finding a buried archaeological site during construction is considered low. However, like all construction projects in the state, the possibility exists. This potential impact is considered significant. Implementation of Mitigation Measures CR-1 and CR-2 would reduce potential impacts associated with the unanticipated discovery of unknown buried archaeological resources. Implementation of Mitigation Measure CR-3 would reduce potential impacts on human remains to a level less than significant.

Future projects with potentially significant impacts on cultural resources would be required to comply with federal, state, and local regulations and ordinances protecting cultural resources through implementation of similar project-specific mitigation measures during construction. Therefore, through compliance with regulatory requirements, standard conditions of approval, and Mitigation Measures CR-1 through CR-3, the proposed project would have a less than cumulatively considerable contribution to impacts on cultural resources.

During operations and decommissioning of the project, no additional impacts on archeological resources would be anticipated because the soil disturbance would have already occurred and been mitigated during construction.

Geology and Soils

Development of the proposed project, in combination with other projects in the area, has the potential to contribute to a cumulatively significant paleontological resources impact due to the potential loss of paleontological resources unique to the region. However, mitigation is included in this EIR to reduce potentially significant project impacts to paleontological resources during construction of the proposed project. Implementation of Mitigation Measure GEO-2 would ensure that the potential impacts on paleontological resources do not rise to the level of significance. Future projects with potentially significant impacts on paleontological resources would be required to comply with federal, state, and local regulations and ordinances protecting paleontological resources through implementation of similar project-specific mitigation measures during construction. Therefore, through compliance with regulatory requirements, standard conditions of approval, and Mitigation Measure GEO-2, the proposed project would have a less than cumulatively considerable contribution to impacts on paleontological resources.

Hydrology/Water Quality

Final EIR Table 5-1 lists the projects considered for the hydrology and water quality cumulative impact analysis. The geographic scope for considering cumulative hydrology and water quality impacts is the Imperial Valley Hydrologic Unit as defined by the Colorado Basin RWQCB Basin Plan.

The construction of the project is expected to result in short-term water quality impacts. Compliance with the SWRCB's NPDES general permit for activities associated with construction (2009-0009-DWQ) would reduce water quality impacts. As with the proposed project, each of the cumulative projects would be required to comply with the Construction General Permit. The SWRCB has determined that the Construction General Permit protects water quality, is consistent with the CWA, and addresses the cumulative impacts of numerous construction activities throughout the state. This determination in conjunction with the implementation of mitigation would ensure short-term water quality impacts are not cumulatively considerable.

The project is not expected to result in long-term operations-related impacts related to water quality. The project would mitigate potential water quality impacts by implementing site design, source control, and treatment control BMPs. Some cumulative projects would require compliance with the SWRCB's

NPDES general permit for industrial activities, as well as rules found in the CWA, Section 402(p)(1) and 40 CFR 122.26, and implemented Order No. 90-42 of the RWQCB. With implementation of SWRCB, Colorado River RWQCB, and County policies, plans, and ordinances governing land use activities that may degrade or contribute to the violation of water quality standards, cumulatively considerable impacts on water quality would be minimized to a less than significant level.

Based on a review of the FEMA Flood Insurance Rate Map FIRM, the proposed solar energy facility, gen-tie line, and access roads located on the western portion of the project site are located in Zone X (unshaded). The FEMA Zone X (unshaded) designation is an area determined to be outside the 0.2 percent annual chance floodplain. As such, the project would not result in a significant cumulatively considerable impact on floodplains by constructing new facilities within an identified flood hazard zone.

Based on these considerations, the project would not contribute to or result in a significant cumulatively considerable impact to hydrology or water quality, and cumulative impacts would be less than significant.

9 Effects Found Not to Be Significant

CEQA Guidelines §15128 require that an EIR contain a brief statement disclosing the reasons why various possible significant effects of the project were found not to be significant, and therefore would not be discussed in detail in the EIR. FEIR Chapter 7.0 identifies the following issues areas that will not be impacted by the project – Agriculture and Forestry Resources, Mineral Resources, Recreation, Population and Housing, Public Services (schools, parks, and other facilities), and Utilities (wastewater, stormwater, and solid waste).

10 Findings Regarding Feasible Alternatives

Pursuant to CEQA Guidelines §15126.6(a), EIRs must “describe a range of reasonable alternatives to the project, or to the location of this 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.”

CEQA establishes no categorical legal imperative as to the scope of alternatives to be analyzed in an EIR. To be legally sufficient, the consideration of project alternatives in an EIR must permit informed agency decision-making and informed public participation. The analysis of alternatives is evaluated against a rule of reason. Alternatives are suitable for study in an EIR if they meet all of the following thresholds: (1) substantially reduce or avoid the project’s significant environmental impacts; (2) attain most of the basic project objectives; (3) are potentially feasible; and (4) are reasonable and realistic. (Guidelines §15126.6, Subds. (a), (c).) Candidate alternatives that do not satisfy these requirements may be excluded from further analysis. An EIR need not consider alternatives that would change the fundamental nature of the project or that cannot achieve the fundamental goals and purposes of the proposed project.

The alternatives to the project are evaluated in Chapter 7.0 of the EIR in terms of their ability to meet the basic objectives of the project, and eliminate or further reduce its significant environmental effects. Based on these parameters, the following alternatives were considered and analyzed in the EIR:

(1) Alternative 1−No Project/No Development Alternative

(2) Alternative 2−Development on Northern Parcel Only

(3) Alternative 3−Development on Southern Parcel Only

10.1 Alternative 1 − No Project/No Development

The State CEQA Guidelines require analysis of the No Project Alternative. According to §15126.6(e)(1) "[t]he specific alternative of 'no project' shall also be evaluated along with its impact." Additionally, according to CEQA Guidelines §15126.6(3)(2), the 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on the current plans and consistent with available infrastructure and community services.

Because the solar energy facility would not be constructed on the proposed project site, the Alternative 1-No Project/No Development Alternative would avoid the project impacts associated with air quality; biological resources; cultural resources; geology and soils; and hydrology and water quality.

A. **Finding.** Alternative 1 is infeasible. It is found pursuant to Public Resources Code Section 21081(a)(3), that specific economic, legal, social, technological, or other considerations, make Alternative 1 infeasible.

B. **Facts in Support of Findings.** Alternative 1-No Project/No Development Alternative is rejected as infeasible because it will not meet the primary objectives of the proposed project which include:

- Construct, operate and maintain an efficient, economic, reliable, safe and environmentally sound solar-powered electricity generating facility.
- Help meet California's RPS requirements, which require that by 2030, California's electric utilities are to obtain 50 percent of the electricity they supply from renewable sources.
- Generate renewable solar-generated electricity from proven technology, at a competitive cost, with low environmental impact, and deliver it to the local markets as soon as possible.
- Develop, construct, own and operate the Wister Solar Energy Facility, and ultimately sell its electricity and all renewable and environmental attributes to an electric utility purchaser under a long-term contract to meet California's RPS goals.
- Utilize a location that is in close proximity to an existing switching station and powerlines.
- Minimize and mitigate any potential impact to sensitive environmental resources within the project area.

For the reasons stated above, the County finds that this alternative is infeasible and less desirable than the proposed project and rejects this alternative.

10.2 Alternative 2 – Development within Renewable Energy Overlay Zone – Agricultural Lands

In certain cases, an evaluation of an alternative location in an EIR is necessary. Section 15126.6(f)(2)(A) of the CEQA Guidelines states, "Key question. The key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR."

The purpose of this alternative is to develop the proposed project within the existing boundary of County's RE Overlay Zone. The RE Overlay Zone is concentrated in areas determined to be the most suitable for the development of renewable energy facilities while minimizing the impact on other established areas.

As shown on Final EIR Figure 7-3, the Alternative 2 project site is located entirely within the RE Overlay Zone. Alternative 2 would involve the construction and operation of a 20 MW solar energy facility and associated infrastructure on approximately 100 acres within a 130-acre parcel (APN 034-260-036) located approximately 4 miles northeast of the Dixieland area in unincorporated Imperial County. The Alternative 2 project site is designated as Agriculture under the County's General Plan and zoned A-3 (Heavy Agriculture).

Similar to the proposed project, Alternative 2 would require approval of a CUP to allow for the construction and operation of a solar project. Compared to the proposed project, the Alternative 2 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. The A-3 zone allows a maximum height limit of 120 feet for non-residential structures. No Variance would be required under this alternative because the proposed height of the transmission towers (70 feet) would not exceed 120 feet.

This alternative would meet most of the basic objectives of the proposed project.

A. **Finding.** It is found pursuant to Public Resources Code Section 21081(a)(3), that specific economic, legal, social, technological, or other considerations, make Alternative 2 infeasible.

B. **Facts in Support of Findings.** The purpose of studying alternatives to the proposed project is to identify alternatives that would substantially reduce or avoid the significant environmental impacts of the proposed project.

This alternative would result in greater environmental impacts when compared to the proposed project related to aesthetics and visual resources, biological resources, cultural resources and tribal cultural resources. Because the Alternative 2 site is located on agricultural lands, this alternative would result in the conversion of agricultural land to non-agricultural uses. Compared to the proposed project, this alternative would result in additional impacts (conversion of agricultural land to non-agricultural uses) that are currently not identified for the project at the currently proposed location. Further, the project applicant does not own, or otherwise control this property.

For the reasons stated above, the County finds that this alternative is infeasible and less desirable than the proposed projects and rejects this alternative.

10.3 Alternative 3 – Development within Renewable Energy Overlay Zone – Desert Lands

The purpose of this alternative is to develop the proposed project within the existing boundary of the County's RE Overlay Zone. As shown on Final EIR Figure 7-4, the Alternative 3 project site is located entirely within the RE Overlay Zone. Alternative 3 would involve the construction and operation of a 20 MW solar energy facility and associated infrastructure on approximately 100 acres within a 161-acre parcel (APN 021-190-003) located approximately 0.5 mile south of Slab City. The Alternative 3 project site is located on undeveloped desert land. Existing transmission lines traverse the southwest corner of the project site.

The Alternative 3 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. The Alternative 3 project site is designated as Recreation under the County's General Plan and zoned General Agricultural with a renewable energy overlay (A-2-RE).

Similar to the proposed project, Alternative 3 will require approval of a CUP to allow for the construction and operation of a solar project. Compared to the proposed project, the Alternative 3 project site is located within the RE Overlay Zone and would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. The A-2-RE zone allows a maximum height limit of 120 feet for non-residential structures. No Variance would be required under this alternative because the proposed height of the transmission towers (70 feet) would not exceed 120 feet.

This alternative would meet most of the basic objectives of the project.

A. **Finding.** It is found pursuant to Public Resources Code Section 21081(a)(3), that specific economic, legal, social, technological, or other considerations, make Alternative 3 infeasible.

B. **Facts in Support of Finding.** The purpose of studying alternatives to the proposed project is to identify alternatives that would substantially reduce or avoid the significant environmental impacts of the proposed project. Implementation of Alternative 3 would result in reduced land use impacts.

This alternative would result in greater impacts for the following environmental issue areas as compared to the proposed project: aesthetics and visual resources, cultural resources, tribal cultural resources, and hydrology/water quality. Further, the project applicant does not own, or otherwise control this property.

For the reasons stated above, the County finds that this alternative is infeasible and less desirable than the proposed project and rejects this alternative.

10.4 Alternative 4 – Distributed Commerical and Industrial Rooftop Solar Only Alternative

This alternative would involve the development of a number of geographically distributed small to medium solar PV systems (100 kilowatts to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities throughout Imperial County. Under this alternative, no new land would be developed or altered. Depending on the type of solar modules installed and the type of tracking equipment used, a similar or greater amount of acreage (i.e., greater than 100 acres of total rooftop area) may be required to attain the proposed project's capacity of 20 MW of solar PV generating capacity. This alternative would involve placement of PV structures, transmission lines, and development of additional supporting facilities, such as switching stations and substations at various locations throughout the County. This alternative assumes that rooftop development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations.

This alternative would require hundreds of installation locations across Imperial County, many of which would require approval of discretionary actions, such as design review, CUPs, or zone variances depending on local jurisdictional requirements. Similar to the proposed project, this alternative would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. This alternative would involve the construction of transmission lines and development of additional

supporting facilities, such as switching stations and substations at various locations throughout the County to distribute the energy.

Rooftop PV systems exist in small areas throughout California. Larger distributed solar PV installations are becoming more common. An example of a distributed PV system is 1 MW of distributed solar energy installed by Southern California Edison on a 458,000 square-foot industrial building in Chino, California.

Similar to utility-scale PV systems, the acreage of rooftops or other infrastructure required per MW of electricity produced is wide ranging, which is largely due to site-specific conditions (e.g., solar insolation levels, intervening landscape or topography, PV panel technology, etc.). Based on SCE's use of 458,000-square feet for 1 MW of energy, approximately 9,160,000 square feet (approximately 210 acres) would be required to produce 20 MW.

A. **Finding.** It is found pursuant to Public Resources Code Section 21081(a)(3), that specific economic, legal, social, technological, or other considerations, make Alternative 4 infeasible.

B. **Facts in Support of Finding.** The purpose of studying alternatives to the proposed project is to identify alternatives that would substantially reduce or avoid the significant environmental impacts of the proposed project. Implementation of Alternative 4 would result in reduced hydrology/water quality impacts.

Alternative 4 - Distributed Commercial and Industrial Rooftop Solar Only Alternative would meet most of the basic objectives of the proposed project. However, this alternative would result in greater impacts for the following environmental issue areas as compared to the proposed project: aesthetics, air quality, biological resources, cultural resources, and utilities and service systems. Furthermore, this alternative would have a number of drawbacks, including, but not limited to the following:

- Difficulties with respect to buildout of the system within a timeframe that would be similar to that of the proposed project;
- Given the distributed nature of such a network of facilities, management and maintenance would not be as efficient, and total capital costs would likely be higher;
- The requirement to negotiate with a large number of individual property owners to permit placement of solar panels on rooftops;
- The difficulty of ensuring proper maintenance of a large number of smaller solar installations; and
- The lack of an effective electricity distribution system for large numbers of small electricity producers.

For the reasons stated above, the County finds that this alternative is infeasible and less desirable than the proposed project and rejects this alternative.

10.5 Findings Regarding Range of Alternatives

A. **Finding.** The EIR considers a reasonable range of alternatives. Substantial evidence supports the conclusion of the EIR regarding alternatives considered and rejected.

B. **Facts in Support of Findings.** The purpose of studying alternatives to the proposed project is to identify alternatives that would substantially reduce or avoid the significant environmental impacts of the proposed project. Substantial evidence shows that all potentially significant

environmental impacts of the proposed project are mitigated below significant levels and that no significant unavoidable significant environmental impacts remain. Consequently, the range of alternatives studied in the EIR is reasonable because it included three alternatives to the proposed project despite there being no significant unavoidable environmental impacts necessitating consideration of alternatives to substantially reduce or avoid such impacts. Although some alternatives would reduce the less-than-significant impacts of the proposed project, CEQA does not require that such alternatives be adopted.

Findings Regarding Growth Inducing Impacts

The proposed project is located within the unincorporated area of Imperial County and it does not involve the development of permanent residences that would directly result in population growth in the area. The unemployment rate in Imperial County, as of September 2019 (not seasonally adjusted), was 20.7 percent (State of California Employment Development Department 2019). The applicant expects to utilize construction workers from the local and regional area, a workforce similar to that involved in the development of other utility-scale solar facilities. Based on the unemployment rate, and the availability of the local workforce, construction of the proposed project would not have a growth-inducing effect related to workers moving into the area and increasing the demand for housing and services.

Once construction is completed, the facility would be remotely operated, controlled and monitored and with no requirement for daily on-site employees. Security personnel may conduct unscheduled security rounds and would be dispatched to the project site in response to a fence breach or other alarm. It is anticipated that maintenance of the facilities would require minimal site presence to perform periodic visual inspections and minor repairs. On intermittent occasions, the presence of additional workers may be required for repairs or replacement of equipment and panel cleaning; however, because of the nature of the facilities, such actions would likely occur infrequently. Overall, minimal maintenance requirements are anticipated. The proposed project would not result in substantial population growth, as the number of employees required to operate and maintain the facility is minimal.

While the proposed project would contribute to energy supply, which indirectly supports population growth, the proposed project is a response to the state's need for renewable energy to meet its Renewable Portfolio Standard, and while it would increase the availability of renewable energy, it would also replace existing sources of non-renewable energy. Unlike a gas-fired power plant, the proposed project is not being developed as a source of base-load power in response to growth in demand for electricity. The power generated would be added to the state's electricity grid with the intent that it would displace fossil fueled power plants and their associated environmental impacts, consistent with the findings and declarations in SB 2 that a benefit of the Renewable Portfolio Standard is displacing fossil fuel consumption within the state. The project is being proposed in response to state policy and legislation promoting development of renewable energy.

The proposed project would supply energy to accommodate and support existing demand and projected growth, but the energy provided by the project would not foster any new growth because (1) the additional energy would be used to ease the burdens of meeting existing statewide energy demands within and beyond the area of the project site; (2) the energy would be used to support already-projected growth; or, (3) the factors affecting growth are so diverse that any potential connection between additional energy production and growth would necessarily be too speculative and uncertain to merit further analysis.

Under CEQA, an EIR should consider potentially significant energy implications of a project (CEQA Guidelines Appendix F(II); PRC Section 21100(b)(3)). However, the relationship between the proposed project's increased electrical capacity and the growth-inducing impacts outside the surrounding area is too speculative and uncertain to warrant further analysis. When a project's growth-inducing impacts are speculative, the lead agency should consider 14 CCR §15145, which provides that, if an impact is too speculative for evaluation, the agency should note this conclusion and terminate discussion of the impact. As the court explained in Napa Citizens for Honest Gov't v. Napa County Board of Supervisors, 91 Cal. App.4th 342, 368: "Nothing in the Guidelines, or in the cases, requires more than a general analysis of projected growth" *Napa Citizens, 91* CA4th at 369. The problem of uncertainty of the proposed project's growth-inducing effects cannot be resolved by collection of further data because of the diversity of factors affecting growth.

While the Final EIR has considered that the proposed project, as an energy project, might foster regional growth, the particular growth that could be attributed to the proposed project is unpredictable, given the multitude of variables at play, including uncertainty about the nature, extent, and location of growth and the effect of other contributors to growth besides the proposed project. No accurate and reliable data is available that could be used to predict the amount of growth outside the area that would result from the proposed project's contribution of additional electrical capacity. The County of Imperial has not adopted a threshold of significance for determining when an energy project is growth-inducing. Further evaluation of this impact is not required under CEQA.

Additionally, the project would not involve the development of any new roadways, new water systems, or sewer; and thus, the project would not further facilitate additional development into outlying areas. For these reasons, the proposed project would not be growth-inducing.

Findings Regarding Significant Irreversible Environmental Changes

Energy resources needed for the construction of the proposed project would contribute to the incremental depletion of renewable and non-renewable resources. Resources, such as timber, used in building construction are generally considered renewable and would ultimately be replenished. Non-renewable resources, such as petrochemical construction materials, steel, copper, lead and other metals, gravel, concrete, and other materials, are typically considered finite and would not be replenished over the lifetime of the project. Thus, the project would irretrievably commit resources over the anticipated 25-year life of the project.

At the end of the project's operation term, the applicant may determine that the project should be decommissioned and deconstructed. Should the project be decommissioned, the project applicant is required to restore land to its pre-project state. Consequently, some of the resources on the site could potentially be retrieved after the site has been decommissioned. Concrete footings, foundations, and pads would be removed and recycled at an off-site location. All remaining components would be removed, and all disturbed areas would be reclaimed and recontoured. The applicant anticipates using the best available recycling measures at the time of decommissioning.

Implementation and operation of the proposed project would promote the use of renewable energy and contribute incrementally to the reduction in demand for fossil fuel use for electricity-generating purposes. Therefore, the incremental reduction in fossil fuels would be a positive effect of the commitment of nonrenewable resources. Additionally, the project is consistent with the state's definition of an "eligible renewable energy resource" in Section 399.12 of the California Public Utilities Code and the definition of "in-state renewable electricity generation facility" in Section 25741 of the California PRC.

1. The County of Imperial (the County), acting through the Board of Supervisors, is the Lead Agency for the project evaluated in the EIR. The County finds that the EIR was prepared in compliance with CEQA and the CEQA Guidelines. The County finds that it has independently reviewed and analyzed the EIR for the project, that the Draft EIR which was circulated for public review reflected its independent judgment and that the Final EIR reflects the independent judgment of the County.
2. The County finds that the EIR provides objective information to assist the decision-makers and the public at large in their consideration of the environmental consequences of the project. The public review period provided all interested jurisdictions, agencies, private organizations, and individuals the opportunity to submit comments regarding the Draft EIR. The Final EIR was prepared after the review period and responds to comments made during the public review period.
3. The Planning and Development Services Department evaluated comments on environmental issues received from persons who reviewed the Draft EIR. In accordance with CEQA, the Planning and Development Services Department prepared written responses describing the disposition of significant environmental issues raised. The Final EIR provides adequate, good faith and reasoned responses to the comments. The Planning Department reviewed the comments received and responses thereto and has determined that neither the comments received nor the responses to such comments add significant new information regarding environmental impacts to the Draft EIR. The Lead Agency has based its actions on full appraisal of all viewpoints, including all comments received up to the date of adoption of these findings, concerning the environmental impacts identified and analyzed in the EIR.
4. The EIR evaluated the following potential project and cumulative environmental impacts:

    - Aesthetics
    - Air Quality
    - Biological Resources
    - Cultural Resources (including Tribal Cultural Resources)
    - Geology and Soils
    - Greenhouse Gas Emissions
    - Hydrology/ Water Quality
    - Land Use and Planning
    - Transportation/Circulation
    - Utilities/Service Systems

    Additionally, the EIR considered, in separate sections, Significant Irreversible Environmental Changes, Growth Inducing Impacts and potential secondary effects of the project. The significant environmental impacts of the project were identified in the Final EIR. The significant environmental impacts of the project and the alternatives were also identified in the Draft and Final EIR.

5. The mitigation measures which have been identified for the project were identified in the Draft and Final EIR. The final mitigation measures are described in the MMRP. Each of the mitigation measures identified in the MMRP, and contained in the Final EIR, is incorporated into the project. The County finds that the impacts of the project have been mitigated to the extent feasible by the mitigation measures identified in the MMRP, and contained in the Final EIR.
6. Textual refinements and errata were compiled and presented to the decision-makers for review and consideration. The Planning and Development Services Department staff has made every effort to notify the decision-makers and the interested public/agencies of each textual change in the various documents associated with the project review. These textual refinements arose for a variety of reasons. First, it is inevitable that draft documents would contain errors and would require clarifications and corrections. Second, textual clarifications were necessitated in order to describe refinements suggested as part of the public participation process.
7. The responses to the comments on the Draft EIR, which are contained in the Final EIR, clarify and amplify the analysis in the Draft EIR.
8. Having reviewed the information contained in the EIR and in the administrative record as well as the requirements of CEQA and the CEQA Guidelines regarding recirculation of Draft EIRs, the County finds that there is no new significant information in the Final EIR, finds that the additional information provided therein merely clarifies, amplifies and/or makes insignificant modifications to the adequate Draft EIR, and finds that recirculation of the Draft EIR is not required.
9. CEQA requires the Lead Agency approving a project to adopt an MMRP for the changes to the project which it has adopted or made a condition of project approval in order to ensure compliance with the mitigation measures during project implementation. The mitigation measures included in the EIR as certified by the County and included in the MMRP as adopted by the County serves that function. The MMRP includes all of the mitigation measures identified in the EIR and adopted by the County in connection with the approval of the project and has been designed to ensure compliance with such measures during implementation of the project. In accordance with CEQA, the MMRP provides the means to ensure that the mitigation measures are fully enforceable. In accordance with the requirements of Public Resources Code §21081.6, the County hereby adopts the MMRP.
10. In accordance with the requirements of Public Resources Code §21081.6, the County hereby adopts each of the mitigation measures expressly set forth herein as conditions of approval for the project.
11. The custodian of the documents or other material which constitute the record of proceedings upon which the County's decision is based is the Imperial County Planning and Development Services Department, 801 Main Street, El Centro, California, 92243.
12. The County finds and declares that substantial evidence for each and every finding made herein is contained in the EIR, which is incorporated herein by this reference, or is in the record of proceedings in the matter.
13. The County is certifying an EIR for, and is approving and adopting findings for, the entirety of the actions described in these Findings and in the EIR as comprising the project. It is contemplated that there may be a variety of actions undertaken by other State and local agencies (who might be referred to as "responsible agencies" under CEQA). Because the

County is the Lead Agency for the project, the EIR is intended to be the basis for compliance with CEQA for each of the possible discretionary actions by other State and local agencies to carry out the project.

14. The EIR is a Project EIR for purposes of environmental analysis of the project. A Project EIR examines the environmental effects of a specific project. The EIR serves as the primary environmental compliance document for entitlement decisions regarding the project by the County of Imperial and the other regulatory jurisdictions.

Recording Requested By and
When Recorded Return To:

Imperial County
Planning & Development Services
801 Main Street
El Centro, California 92243

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AGREEMENT FOR
CONDITIONAL USE PERMIT #18-0040
Wister Solar Energy Facility
APN 003-240-001-000
(December 17, 2020 by Planning Commission)
(January 26, 2021 by Board of Supervisors)

This Agreement is made and entered into on this 11 day of March, 2021, by and between ORNI 33, LLC, hereinafter referred to as the Permittee (Permittee), and the COUNTY OF IMPERIAL, a political subdivision of the State of California, (hereinafter referred to as "COUNTY") related to the Wister Solar Energy Facility.

RECITALS

WHEREAS, Permittee is the lessee or successor-in-interest of certain land in Imperial County with the proposed photovoltaic solar energy facility, electrical switch station, substation, and internal solar development transmission lines, on approximately 100 acres within a 640 acre parcel in Imperial County. The proposed facility is located approximately 3 miles northeast of the Townsite of Niland; Assessor Parcel Number 003-240-001-000, Section 27, Township 10 South, Range 14 East, San Bernardino Base & Meridian (SBBM).

WHEREAS, Permittee has applied to the County of Imperial for a Conditional Use Permit #18-0040 for constructing and operating a new 20 megawatt (MW) solar photovoltaic (PV) energy facility using high-efficiency PV technology, supporting structures, on-site substation, access driveways, and transmission structures, and connection to the existing 92kV line (the "Project").

The Permittee for the Wister Solar Energy Facility Project shall fully comply with all of the terms and conditions of the Project as specified hereinafter within this Conditional Use Permit.

GENERAL CONDITIONS:

The "GENERAL CONDITIONS" are shown by the letter "G". These conditions are conditions that are either routinely and commonly included in all Conditional Use Permits as "standardized conditions" and/or are conditions that the Imperial County Planning Commission has established as a requirement on all CUP's for consistent application and enforcement. The Permittee is hereby advised that the General Conditions are as applicable as the SITE SPECIFIC conditions.

G-1 GENERAL LAW:

The Permittee shall comply with all local, state and/or federal laws, rules, regulations, ordinances, and/or standards (LORS) as they may pertain to the Project whether specified herein or not.

G-2 PERMITS/LICENSES:

The Permittee shall obtain any and all local, state and/or federal permits, licenses, and/or other approvals for the construction and/or operation of the Project. This shall include, but not be limited to, local requirements by the Imperial County EHS/Health Department, Planning and Development Services Department, Imperial County Air Pollution Control District (ICAPCD), Imperial Irrigation District (IID), Imperial County Public Works Department, Imperial County Sheriff/Coroner's office, Imperial County Fire Protection/Office of Emergency Services, among others. Permittee shall likewise comply with all such permit requirements. Additionally, Permittee shall submit a copy of such additional permits and/or licenses to the Planning and Development Services Department within thirty (30) days of receipt, including amendments or alternatives thereto, when requested.

G-3 RECORDATION:

This permit shall not be effective until it is recorded at the Imperial County Recorder's Office and payment of the recordation fee shall be the responsibility of the Permittee. If the Permittee fails to pay the recordation fee within six (6) months from the date of approval, this permit shall be deemed null and void.

G-4 CONDITION PRIORITY:

The Project shall be constructed and operated as described in the Conditional Use Permit, CUP application, Mitigation Monitoring & Reporting Program, and the Final Environmental Impact Report, (FEIR).

G-5 INDEMNIFICATION:

As a condition of this permit, Permittee agrees to defend, indemnify, hold harmless, and release the County, its agents, officers, attorneys, and employees from any claim, action, or proceeding brought against any of them, the purpose of which is to attack, set aside, void, or annul the entitlements permit, approvals or adoption of the environmental document which accompanies it. This indemnification obligation shall include, but not be limited to, damages, costs, expenses, attorney's fees, or expert witness fees that may be asserted by any person or entity, including the Permittee, arising out of or in connection with the approval of this permit, whether there is concurrent, passive or active negligence on the part of the County, its agents, officers, attorneys, or employees. This indemnification shall include Permittee's actions involved in drilling, grading, construction, operation or abandonment of the permitted activities. Permittee further agrees to comply with the terms of the indemnification agreement incorporated by this reference and attached hereto as Exhibit A. Failure to provide payment of any fees shall cause Permittee to be in non-compliance with this permit. Upon notification of non-compliance, County may, at its sole discretion, cease processing, defending any lawsuit or paying for costs associated with this project.

G-6 INSURANCE:

The Permittee and/or Permittee's prime contractor assigned site control during construction, shall secure and maintain liability in tort and property damage, insurance at a minimum of **$1,000,000** or proof of financial responsibility to protect persons or property from injury or damage caused in any way by construction and/or operation of permitted facilities. The Permittee shall require that proper Workers' Compensation insurance cover all laborers working on such facilities as required by the State of California. The Permittee and/or Permittee's prime contractor assigned site control during construction, shall also secure liability insurance and such other insurance as may be required by the State and/or Federal Law. Evidence of such insurance shall be provided as applicable to the County prior to commencement of any activities authorized by this permit, e.g. a Certificate of Insurance is to be provided to the Planning and Development Services Department by the insurance carrier and said insurance and certificate shall be kept current for the life of the permitted Project. Certificate(s) of Insurance shall be sent directly to the Planning and Development Services Department by the insurance carrier and shall name the Department as a recipient of both renewal and cancellation notices.

G-7 INSPECTION AND RIGHT OF ENTRY:

The County reserves the right to enter the premises to make appropriate inspection(s) and to determine if the condition(s) of this permit are complied with. The owner or operator shall allow an authorized County representative access into the site upon the presentation of credentials and other documents as may be required by law to:

(a) Enter at reasonable times upon the owner's or operator's premises where a permitted facility or activity is located or conducted, or where records must be kept under the conditions of the permit.

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit.

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the permit.

(d) Sample or monitor, at reasonable times, for the purpose of assuring permit compliance or, otherwise authorized by law, any substances or parameters at any location.

G-8 SEVERABILITY:

Should any condition(s) of this permit be determined by a Court or other agency with proper jurisdiction to be invalid for any reason, such determination shall not invalidate the remaining provision(s) of this permit.

G-9 PROVISION TO RUN WITH THE LAND/PROJECT:

The provisions of this Permit are to run with the land/project and shall bind the current and future owner(s), successor(s)-in-interest, assignee(s) and/or transferee(s) of said Project pursuant to the recordation required by Condition G-3. Permittee shall not without prior notification to the Planning and Development Services Department assign, sell or transfer, or grant control of Project or any right or privilege therein granted by this permit. The Permittee shall provide a minimum of thirty (30) days written notice prior to any proposed transfer becoming effective. The permitted use identified herein is limited for use upon the permitted properties described herein and may not be transferred to any another other parcel(s) without prior approval.

G-10 TIME LIMIT:

Unless otherwise specified within the specific conditions, this permit shall be limited to a maximum of twenty-five (25) years from the approval date of the CUP. The Conditional Use Permit may be extended for a five (5) year period by the Imperial County Planning & Development Services Director. If an extension is necessary, the Permittee shall file a written extension request with the Planning Director at least sixty (60) days prior to the expiration date of the permit. Such an extension request shall include the appropriate extension fee. If the original approval was granted by the Planning Commission and/or the Board of Supervisors, such an extension shall only be considered by the approving body, after a noticed public hearing. Nothing stated or implied within this permit shall constitute a guarantee that an extension will be granted. An extension may not be granted if the Project is in violation of any one or all of the conditions or if there is a history of non-compliance with the permit conditions. I.C.P.D.S Div. 2, Chapter 3, Section 90203.13.

G-11 COST:

The Permittee shall pay any and all amounts determined by the County of Imperial to defray any and all cost(s) for the review of reports, field investigations, monitoring, and other activities directly related to the enforcement/monitoring for compliance of this Conditional Use Permit, County Ordinance or any other applicable law. All County Departments, directly involved in the monitoring/enforcement of this permit may bill Permittee under this provision, however said billing shall only be through and with the approval of the Planning and Development Services Department. All County staff time will be billed on a time and materials basis. Failure by Permittee to provide any payment required of Permittee to the County in the CUP shall cause Permittee to be in non-compliance of the CUP. Upon Permittee being in such noncompliance, County may, at its sole discretion, cease processing, defending any lawsuit or paying for costs associated with the Project.

G-12 REPORTS/INFORMATION:

If requested by the Planning Director, Permittee shall provide any such documentation/report as necessary to ascertain compliance with the Conditional Use Permit. The format, content and supporting documentation shall be as required by the Planning Director.

G-13 DEFINITIONS:

In the event of a dispute the meaning(s) or the intent of any word(s), phrase(s) and/or conditions or sections herein shall be determined by the Planning Commission of the County of Imperial. Their determination shall be final unless an appeal is made to the Board of Supervisors within the required time.

G-14 MINOR AMENDMENTS:

The Planning Director may approve minor changes or modification(s) to the design, construction, and/or operation of the Project provided said changes are necessary for the Project to meet other laws, regulations, codes, or conditions of the CUP, EIR and MMRP, and provided such changes will not result in any additional environmental impacts.

G-15 SPECIFICITY:

The issuance of this permit does not authorize the Permittee to construct or operate the Project in violation of any state, federal, or local law nor beyond the specified boundaries of the Project as shown the application/project description/permit, nor shall this permit allow any accessory or ancillary use not specified herein. This permit does not provide any prescriptive right or use to the Permittee for future addition and or modifications to the Project.

G-16 NON-COMPLIANCE (ENFORCEMENT & TERMINATION):

Should the Permittee violate any condition herein, the County shall give written notice of such violation and actions required of Permittee to correct such violation. If Permittee does not act to correct the identified violation within sixty (60) days after written notice, County may revoke the CUP. If Permittee pursues correction of such violation with reasonable diligence, the County may extend the cure period. Upon such revocation, County may, at its sole discretion, cease processing, defending any lawsuit or paying for costs associated with the Project.

G-17 GENERAL WELFARE:

All construction and operations of the solar energy facility shall be conducted with consistency with all laws, conditions, adopted County policies, plans, mitigation measures and the permit application so that the Project will be in harmony with the area and not conflict with the public health, safety, comfort, convenience, and general welfare of those residing in the area.

G-18 PERMITS OF OTHER AGENCIES INCORPORATED:

Permits granted by other governmental agencies in connection with the Project are incorporated herein by reference. The County reserves the right to apply conditions of those permits, as the County deems appropriate and subject to its having jurisdiction; provided, however, that enforcement of a permit granted by another governmental agency shall require written concurrence by the respective agency. Permittee shall provide to the County, upon request, copies and amendments of all such permits.

G-19 HEALTH HAZARD:

If the County Health Officer reasonably determines that a significant health hazard exists to the public, the Health Officer may require appropriate measures and the Permittee shall implement such measures to mitigate the health hazard. If the hazard to the public is determined to be imminent, such measures may be imposed immediately and may include temporary suspension of permitted activities. The measures imposed by the County Health Officer shall not prohibit the Permittee from requesting a special Planning Commission meeting, provided the Permittee bears all related costs.

G-20 APPROVALS AND CONDITIONS SUBSEQUENT TO GRANTING PERMIT:

Permittee's acceptance of this permit shall be deemed to constitute agreement with the terms and conditions contained herein. Where a requirement is imposed in this permit that Permittee conduct a monitoring program, and where the County has reserved the right to impose or modify conditions with which the Permittee must comply based on data obtained there from, or where the Permittee is required to obtain additional conditional use permits for County approval for subsequent activities, and disagreement arises, the Permittee, operator and/or agent, the Planning and Development Services Director or other affected party, as determined by the Planning and Development Services Director, may request that a hearing before the Imperial County Planning Commission. Upon

receipt of a request, the Planning Commission shall conduct a hearing and make a written determination. The Planning Commission may request support and advice from a technical advisory committee. Failure of the Planning Commission to act shall constitute endorsement of staff's determination with respect to implementation.

SITE SPECIFIC CONDITIONS:

S-1 AUTHORIZED SCOPE OF ACTIVITIES:

1. ORNI 33, LLC shall be the developer for this Project and shall be responsible as for all improvements, septic, sewer, approved potable water system(s), pipelines, roads and other improvements discussed in the Conditional Use Permit Application and Conditions, FEIR, and MMRP. Water shall be provide from either the existing on-site well located at the north-western portion of the project site or from a local water source utilizing a 10,000-galon aboveground water storage facility as required by ICFD. If ORNI 33, LLC sells all or part of this Project, an approved agreement shall be in place for new Project owner to build and maintain as agreed to by the conditions set forth in this CUP. The Planning and Development Services Director shall approve of such agreement between ORNI 33, LLC and a new developer for this Project. The County Assessor's Office shall be notified of any ownership change.

2. ORNI 33, LLC shall develop this CUP property as a separate solar energy facility. Any development with a combination of parcels will require the owner(s) to have a recorded deed restriction to "hold the parcel as one parcel" that runs with the land. This deed restriction shall be for a minimum of 25 years and shall only be released upon the expiration of the 25 years, the expiration or termination of the Conditional Use Permit, or upon approval of the Planning & Development Director that the restriction is no longer needed based on a change in the development or regulation.

3. The Permittee may construct and operate the following facilities in compliance with the Conditional Use Permit, the County's General Plan's Land Use Element, Land Use Ordinance and all other applicable local, state, and federal laws, ordinances, regulations and standards (LORS), to include any other permits which are incorporated herein by reference:

   a. Construction, operation, maintenance, replacement and removal of a solar energy facility as described in Permittee's CUP Application. The solar energy facility would include photovoltaic modules, mounting structures, electrical wiring, inverters, transformers and AC electric collector system, project electric substation and ancillary facilities. Ancillary facilities would include safety and security equipment, retention basins, perimeter fencing, access gates, lighting systems, access roads, and could include temporary construction trailers, equipment enclosures, water treatment system, septic system, parking, and fire protection including a minimum 10,000 gallon fire water tank, and monitoring and control systems.

b. The Project proposes to use either thin film or crystalline solar photovoltaic (PV) technology modules mounted on fixed or horizontal single-axis tracker (HSAT) systems; concentrating photovoltaic (CPV) systems mounted on a dual-axis tracking system; or a mix of the technologies.

c. **PV module** arrays would be mounted on racks supported by driven piles. The depth of the piles would be dependent on the geotechnical recommendations for the Project. If HSAT technology is used, the PV modules would rotate around the north-south HSAT axis so that the PV modules would face the sun as it moves across the sky throughout the day. The PV modules would reach their maximum height (up to nine feet above the ground, depending on the final design) when the HSAT is rotated to point the modules at the rising or setting sun at both sunrise and sunset. When the HSAT system is rotated so that the PV modules are horizontal (at noon, or when stowed during high winds), the nominal height would be approximately six feet above the ground, depending on the final design. The individual PV systems would be configured in large arrays by placing them in columns spaced approximately ten feet apart to maximize operational performance and to allow access for panel cleaning and maintenance. These arrays would be separated from each other and the perimeter security fence by nominal 20-foot wide roads, consistent with emergency access requirements.

d. **Substations**- a substation, would developed and located in close coordination with IID, to transform the collected 92-Kv power generation to IID transmission system voltages. The substation would include a main power transformer, facility protection equipment, and a control enclosure. The substation structure's maximum height would be equal to or less than existing IID facility structures. The substation will convert the collection-level electricity (92-KV) to the IID existing 92-kV line located at the southwest corner of the property. All interconnection equipment would be installed aboveground and within the footprint of the project substation. The overall footprint of the project substation is anticipated to be approximately 300 by 175 feet and poles up to 70 feet in height.

e. **Gen-Tie Line**- The proposed project may require one transmission structures to connect the project substation to IID's existing 92-Kv line located at the southwest corner of the property. Final structure heights would be determined by IID, but shall not exceed 70 feet.

f. **Telecommunications**

The project requires telecommunications connections for remote operations and utility telemetry. The region in which the project is proposed is known to be without significant fiber infrastructure or high-speed copper based telecommunication options. As is typical for facilities of this nature in the project region, microwave point to point service would likely be required. Satellite based solutions may also be considered, if such solutions can meet the project requirements. Microwave

solutions do require the installation of a radio antenna pole or tower, typical ranging in height from 20 to 100 feet. Any such structure would be located immediately adjacent to the substation control enclosure.

g. **Site Access-** The nearest paved road, Wilkins Road, is located at the southwest corner of project site. The primary means of access (all public) is from Wilkins Road Road. For all access to the site, active dust control mitigation measures would be utilized for all un-paved portions during construction of the facility. To accommodate emergency access, PV panels would be spaced to maintain proper clearance. A 20-foot-wide access road would be constructed along the perimeter fence and solar panels to facilitate vehicle access and maneuverability for emergency unit vehicles. The internal access road would be graded and compacted (native soils) as required for construction, operations, maintenance, and emergency vehicle access.

h. **Panel Washing** - Water required for operations and maintenance of the project would be provided from an existing well site located on project site or from a local water source. One water storage tank would be installed as required by the ICFD. Water would be used for periodic cleaning of the solar PV panels. It is anticipated that the solar PV panels would be washed up to four times per year to ensure optimum solar absorption by removing dust particles and other buildup. Total water demand during operation, including panel washing and other domestic water needs, is estimated to be approximately 1.37 acre-feet per year (AFY). One or two small above ground portable sanitary waste facilities may be installed to retain wastewater for employee use. If installed, these facilities would remain onsite for the duration of the project. These facilities would be installed in accordance with state requirements and emptied as needed by a contracted wastewater service vehicle. No wastewater would be generated during panel washing as water would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious. Except as specifically authorized in the permit, supplemental activities which require additional major equipment or facilities will require separate permits. The County, in issuing this Permit, in no way assures, or otherwise vests any right, with respect to the issuance of a permit or permits for such supplemental activities.

S-2 AESTHETICS:

1. The Permittee shall design and maintain all buildings and equipment enclosures to have exterior surfaces with neutral, non-reflective colors. The construction and maintenance of County-approved landscaping along the access into the Operation/Maintenance Facility shall be in compliance with the Land Use Ordinance, Division 3, Chapters 1 and 2, Sections 90302.00 through 90302.19 and as indicated in the FEIR and Mitigation Monitoring and Reporting Program.

2. The Permittee shall design and install lighting at construction storage yards and staging areas, such that light bulbs and reflectors are not visible from public viewing

areas; lighting does not create reflected glare; and illumination of the Project facilities, vicinity, and nighttime sky is minimized.

3. Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light source is shielded to minimize light trespass outside the Project boundary.

4. All lighting shall be of minimum necessary brightness consistent with worker safety and OSHA-Requirements.

5. High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied.

S-3 AGRICULTURE COMMISSIONER:

1. The Project Developer shall:

   a) Develop and implement an approved Pest Management Plan for the duration of the project that will reduce negative impacts to surrounding farmland. Plan shall be reviewed and approved by the Imperial County Agricultural Commissioner's Office.

   b) Monitor for all pests including insects, vertebrates, weeds, and pathogens. Promptly control or eradicate pests when found, or when notified by the Agricultural Commissioner's office that a pest problem is present on the project site. The assistance of a licensed pest control advisor (PCA) is recommended.

S-4 AIR QUALITY:

1. The Permittee shall comply at all times with the Imperial County Air Pollution Control District's (ICAPCD) Regulation VIII, Fugitive Dust Control. The primary pollutant controlled by this regulation is PM10, "fugitive dust." All identified PM10 sources associated with the construction and operation of the facility, such as open areas, roads, stock piles, material transport and grading activities, shall be controlled such that surface areas are stabilized and visible dust emissions are below 20%. Any control measure not listed within the appropriate sections of Regulation VIII, such as but not limited to watering, graveling, chemical stabilizers and wind barriers shall not be utilized without prior approval from the ICAPCD.

2. The Permittee shall submit to the ICAPCD for approval a dust control plan identifying all sources of PM10 emissions and associated mitigation measures during the construction and operational phases of the project. Permittee shall submit a "Construction Notification Form" to the ICAPCD 10 days prior to the commencement of any earthmoving activity.

3. The Permittee shall comply with all applicable standard mitigation measures for construction combustion equipment for the reduction of excess NOx emissions as identified in the air quality analysis and as contained in the Imperial County CEQA Air Quality Handbook and associated regulations.

- Utilize all Tier 3 or Tier 4 construction equipment.
- Prohibit idling of equipment not in use; for equipment in use reduce idling time to a maximum of 5 minutes.
- Where feasible replace fossil fuel burning equipment with electrically driven equivalents provided they are not powered via a portable generator
- Register all portable engines 50 horse power or greater with the ICAPCD

4. Permittee shall also apply enhanced measures to assure reduced levels of NOx are maintained during the construction phase of the project.

- Submit to the Air District prior to any earthmoving activity a complete list of all construction equipment to be utilized during the construction phase identifying Make, Model, Year, Horsepower and estimated hours of usage.
- In the event, NOx emissions are calculated to exceed ICAPCD thresholds for construction the Permittee shall provide for "offsite" mitigation or comply with Policy number 5. Policy number 5 allows a project to pay in-lieu impact fees utilizing the most current Carl Moyer Cost Effective methodology to reduce excess NOx emissions.

Mitigations for Air Quality

AQ-1 Construction Equipment

Construction equipment shall be equipped with an engine designation of EPA Tier 2 or better (Tier 2+). A list of the construction equipment, including all off-road equipment utilized at each of the projects by make, model, year, horsepower and expected/actual hours of use, and the associated EPA Tier shall be submitted to the County Planning and Development Services Department and ICAPCD prior to the issuance of a grading permit. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.

AQ-2 Fugitive Dust Control

Pursuant to ICAPCD, all construction sites, regardless of size, must comply with the requirements contained within Regulation VIII – Fugitive Dust Control Measures. Whereas these Regulation VIII measures are mandatory and are not considered project environmental mitigation measures, the ICAPCD CEQA Handbook's required additional standard and enhanced mitigation measures listed below shall

be implemented prior to and during construction. The County Department of Public Works will verify implementation and compliance with these measures as part of the grading permit review/approval process.

ICAPCD Standard Measures for Fugitive Dust (PM10) Control

- All disturbed areas, including bulk material storage, which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material, such as vegetative ground cover.
- All on-site and offsite unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material.
- All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.
- Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line.
- The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants, and/or watering.

ICAPCD "Discretionary" Measures for Fugitive Dust (PM10) Control

- Water exposed soil with adequate frequency for continued moist soil.
- Replace ground cover in disturbed areas as quickly as possible.
- Automatic sprinkler system installed on all soil piles.
- Vehicle speed for all construction vehicles shall not exceed 15 miles per hour on any unpaved surface at the construction site.
- Develop a trip reduction plan to achieve a 1.5 average vehicle ridership for construction employees.

- Implement a shuttle service to and from retail services and food establishments during lunch hours.

Standard Mitigation Measures for Construction Combustion Equipment

- Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.
- Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use.
- Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

Enhanced Mitigation Measures for Construction Equipment

- To help provide a greater degree of reduction of PM emissions from construction combustion equipment, ICAPCD recommends the following enhanced measures.
- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways.
- Implement activity management (e.g., rescheduling activities to reduce short term impacts).

AQ-3 Dust Suppression.

The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. The project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, and Fire Department access/emergency entry/exit points as approved by Fire/Office of Emergency Services [OES] Department).

AQ-4 Dust Suppression Management Plan.

Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Imperial County Planning and Development Services Department (ICPDS) approval.

AQ-5 Operational Dust Control Plan.

Prior to issuance of a Certificate of Occupancy, the applicant shall submit an operations dust control plan and obtain ICAPCD and ICPDS approval. ICAPCD Rule 301 Operational Fees apply to any project applying for a building permit. At the time that building permits are submitted for the proposed project, ICAPCD shall review the project to determine if Rule 310 fees are applicable to the project.

S-5 GEOLOGY/SOILS AND MINERAL RESOURCES

1. Prior to approval of final engineering and grading plans for the Wister Solar Energy Facility Project site, the Permittee shall verify that all recommendations contained in the final Geotechnical Evaluation and Corrosion Analysis, or subsequent additional studies, have been incorporated into final engineering and grading plans to the extent applicable. The County's soil engineer and engineering geologist shall review engineering and grading plans prior to finalization, to verify plan compliance with the recommendations of the report. All development on the Project site shall be in accordance with Title 24, California Code of Regulations.

2. Structure placement in areas of high shrink/swell potential shall be avoided where possible; and if not avoided, structures shall be designed to resist the forces of the shrink/swell or such soils removed and replaced as determined by final geotechnical investigations and design.

3. Structures shall be placed in geologically stable areas, avoiding fault lines, brittle surface rock and bedrock, etc.

4. Project construction activities shall be designed and implemented to avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation. Maintenance of cut and fill slopes created by Project construction activities shall consist primarily of erosion repair. Where re-vegetation is necessary to improve the success of erosion control, planting or seeding with native seed mix shall be done on slopes.

5. Prior to approval of final building plans, structures within the Project area shall be designed and constructed to resist the effects of seismic ground motions as provided in Section 1613 of the 2010 California Building Code.

6. The Project shall be engineered using the 2010 California Building Code, Section 1613 Design Coefficients for the proposed structures.

7. Prior to issue of building permits, the design of foundations and slabs-on-ground shall be performed in accordance with the procedures

outlined in Sections 1808.6.1 and 1808.6.2 of the 2010 CBC and the latest edition of the Wire Reinforcement Institute (WRI) publication "Design of Slab-on-Grade Foundations." An effective plasticity index of 12 shall be used by the project structural engineer to design slabs-on-grade within an interior grade beam system in accordance with the WRI publication.

8. Prior to the issue of Building permits: The type of concrete to be used in construction of the Project shall follow the recommendation of a structural engineer and the contractor responsible for concrete placement used in footings and interior slabs-on-ground, foundation walls, and concrete exposed to weather.

9. Prior to the issue of Building permits, the thickness of the concrete cover over the reinforcement shall be determined by a structural engineer to protect against elevated chloride levels. The thickness shall be determined based upon the chloride concentration of on-site soils. Prior to the issue of Building permits,

a) The recommendations of a corrosion engineer shall be implemented to mitigate the detrimental effects of corrosive soils on buried metallic and other building materials that may be exposed to corrosive soils.
b) Any ferrous metal or copper components of the proposed buildings or panel foundations placed in direct contact with Project soils shall be protected against detrimental effects of severely corrosive soils.
c) Sampling and testing of near-surface soils shall be performed during the final stages of site grading by a qualified corrosion engineer to provide a complete assessment of soil corrosively.

Mitigations for Geology and Soils

GEO-1 Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.

Facility design for all project components shall comply with the site-specific design recommendations as provided by a licensed geotechnical or civil engineer to be retained by the project applicant. The final geotechnical and/or civil engineering report shall address and make recommendations on the following:

Site preparation

Soil bearing capacity

Appropriate sources and types of fill

Potential need for soil amendments

Structural foundations

Grading practices

Soil corrosion of concrete and steel

Erosion/winterization

Seismic ground shaking

Liquefaction

Expansive/unstable soils

In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include subsurface testing of soil and groundwater conditions, and shall determine appropriate foundation designs that are consistent with the version of the CBC that is applicable at the time building and grading permits are applied for. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicant. The final geotechnical and/or civil engineering report shall be submitted to Imperial County Public Works Department, Engineering Division for review and approval prior to issuance of building permits.

GEO-2 Paleontological Resources.

In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the project site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.

S-6 CULTURAL RESOURCES:

1. The Archaeological Monitor shall oversee the effectiveness of the protective measures described in this measure at least twice per month during construction to ensure that unanticipated cultural resources are avoided. If an unanticipated cultural resource is discovered, the monitor will immediately notify the Construction

Manager and give interim directions for protecting the site, which may include mandatory cessation of activity within 100 feet or more of the discovery. The Construction Manager will be responsible for promptly implementing those interim measures. The Archaeological Monitor shall oversee the removal of the temporary fencing after construction is completed. The Construction Manager shall be required to provide a minimum of 48 hours advance notice to the archaeological monitor before fence removal occurs.

2. A qualified paleontological monitor shall be present during ground-breaking activities associated with Project construction. The depth of excavation that requires paleontological monitoring shall be determined by the paleontological monitor and the construction contractor based on initial observations during construction earth moving. The paleontological monitor will be equipped to salvage fossils as they are unearthed (to help avoid construction delays) and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors are empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens.

3. Recovered specimens shall be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Fossil specimens shall be curated by accessioning them into an established, accredited museum repository with permanent retrievable paleontological storage. A report of findings with an appended itemized inventory of specimens will be prepared. The report and inventory, when submitted to the Imperial County Department of Planning and Development Services, along with confirmation of the curation of recovered specimens into an established, accredited museum repository, will signify completion of the program to mitigate impacts to paleontological resources.

Mitigations for Cultural Resources

CR-1

Pursuant to CEQA Guidelines §15064.5(f), in the event that previously unidentified unique archaeological resources are encountered during construction or operational repairs, archaeological monitors will be authorized to temporarily divert construction work within 100 feet of the area of discovery until significance and the appropriate mitigation measures are determined by a qualified archaeologist familiar with the resources of the region.

Applicant shall notify the County within 24 hours. Applicant shall provide contingency funding sufficient to allow for implementation of avoidance measures or appropriate mitigation.

CR-2

In the event of the discovery of previously unidentified archaeological materials, the contractor shall immediately cease all work activities within approximately 100 feet of the discovery. After cessation of excavation, the contractor shall immediately contact the Imperial County Department of Planning and Development Services. Except in the case of cultural items that fall within the scope of the Native American Grave Protection and Repatriation Act, the discovery of any cultural resource within the project area shall not be grounds for a "stop work" notice or otherwise interfere with the project's continuation except as set forth in this paragraph.

In the event of an unanticipated discovery of archaeological materials during construction, the applicant shall retain the services of a qualified professional archaeologist, meeting the Secretary of the Interior's Standards for a Qualified Archaeologist, to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If the qualified archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the applicant shall implement an archaeological data recovery program.

S-7 HEALTH, SAFETY AND HAZARDOUS MATERIAL/FIRE AND FUELS MANAGEMENT

1. All trash and debris within the Project site shall be disposed of off-site, in accordance with current, local, state, and federal disposal regulations. Compliance with this measure shall be verified by the Planning and Development Services Department.

2. If it is determined that hazardous wastes are, or will be generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Div 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5).

3. If it is determined that hazardous wastes will be generated, the Permittee should also obtain a United States Environmental Protection Agency, Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous material, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting the local CUPA.

4. Firearms shall be prohibited in all Project areas except for those used by licensed security personnel.

5. Prior to the demolition of any building, structure, or transit pipe, the Applicant shall hire a California Certified Lead Inspector/Assessor and Certified asbestos Consultant to evaluate these features for the presence of lead based paint (LBP)

and/or asbestos containing materials (ACM). Confirmed LBP and/or ACM shall be handled by a licensed LBP contractor and/or Licensed Asbestos Contractor. All contaminants shall be remediated in compliance with California environmental regulations and policies. LBP and/or ACM shall be disposed of according to appropriate regulations.

S-8 HYDROLOGY AND WATER QUALITY

1. Construction and operation activities within Flood Zone A shall be halted during flash flood warnings and events or any other flooding events as predicted by local weather forecasts, the National Weather Service to which the solar farm complex site is subject. Upon notification of potential flood events in the Project vicinity, any non-stationary equipment and personnel located within Flood Zone A shall be relocated outside of the flood zone until such time as the threat of flooding has passed.

Hydrology Mitigation Measure

HYD-1 Prepare SWPPP and Implement BMPs Prior to Construction and Site Restoration

The project applicant or its contractor shall prepare a SWPPP specific to the project and be responsible for securing coverage under SWRCB's NPDES stormwater permit for general construction activity (Order 20090009DWQ). The SWPPP shall identify specific actions and BMPs relating to the prevention of stormwater pollution from project related construction sources by identifying a practical sequence for site restoration, BMP implementation, contingency measures, responsible parties, and agency contacts. The SWPPP shall reflect localized surface hydrological conditions and shall be reviewed and approved by the project applicant prior to commencement of work and shall be made conditions of the contract with the contractor selected to build and decommission the project. The SWPPP(s) shall incorporate control measures in the following categories:

- Soil stabilization and erosion control practices (e.g., hydroseeding, erosion control blankets, mulching)
- Dewatering and/or flow diversion practices, if required (Mitigation Measure HYD2)
- Sediment control practices (temporary sediment basins, fiber rolls)
- Temporary and post-construction on and offsite runoff controls
- Special considerations and BMPs for water crossings, wetlands, and drainages
- Monitoring protocols for discharge(s) and receiving waters, with emphasis place on the following water quality objectives: dissolved oxygen, floating material, oil and grease, pH, and turbidity
- Waste management, handling, and disposal control practices
- Corrective action and spill contingency measures

- Agency and responsible party contact information
- Training procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP

The SWPPP shall be prepared by a qualified SWPPP practitioner with BMPs selected to achieve maximum pollutant removal and that represent the best available technology that is economically achievable. Emphasis for BMPs shall be placed on controlling discharges of oxygen depleting substances, floating material, oil and grease, acidic or caustic substances or compounds, and turbidity. BMPs for soil stabilization and erosion control practices and sediment control practices will also be required. Performance and effectiveness of these BMPs shall be determined either by visual means where applicable (i.e., observation of above normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (inadvertent petroleum release) is required to determine adequacy of the measure.

HYD-2 Incorporate Post-Construction Runoff BMPs into Project Drainage Plan

The project Drainage Plan shall adhere to County's Engineering Guidelines Manual, IID "Draft " Hydrology Manual, or other recognized sources with approval by the County Engineer to control and manage the on and offsite discharge of stormwater to existing drainage systems. Infiltration basins will be integrated into the Drainage Plan to the maximum extent practical. The Drainage Plan shall provide both short and long term drainage solutions to ensure the proper sequencing of drainage facilities and management of runoff generated from project impervious surfaces as necessary.

S-9 BIOLOGICAL RESOURCES:

1. The Permittee's Designated Biologist shall coordinate with the U.S. Fish & Wildlife Service (USF&WS) and the California Department of Fish and Wildlife(CD&FW) for the preparation, implementation and monitoring for protection of biological resources at the solar site.

BIOLOGICAL MITIGATION MEASURES

BIO-1 Pre-Construction Plant Survey.

Prior to initiating ground disturbance, a focused survey for Harwood's milkvetch shall occur during its blooming period. A reference population shall be identified and confirmed to be blooming at the time that surveys are conducted on the project site.

Should Harwood's milkvetch be present on site, project design will be evaluated to determine if modifications can be made to avoid at least 90-percent of the observed

individuals or compensatory mitigation shall be provided through off-site preservation of an equivalent population.

BIO-2 General Impact Avoidance and Minimization Measures.

The following measures will be applicable throughout the life of the project:

To reduce the potential indirect impact on migratory birds, bats and raptors, the project will comply with the APLIC 2012 Guidelines for overhead utilities, as appropriate, to minimize avian collisions with transmission facilities (APLIC 2012)

All electrical components on the project site shall be either undergrounded or protected so that there will be no exposure to wildlife and therefore no potential for electrocution.

The Project proponent shall will designate a Project Biologist who shall be responsible for overseeing compliance with protective measures for the biological resources during vegetation clearing and work activities within and adjacent to areas of native habitat. The Project Biologist will be familiar with the local habitats, plants, and wildlife. The Project Biologist will also maintain communications with the Contractor to ensure that issues relating to biological resources are appropriately and lawfully managed and monitor construction. The Project Biologist will monitor activities within construction areas during critical times, such as vegetation removal, the implementation of Best Management Practices (BMP), and installation of security fencing to protect native species. The Project Biologist will ensure that all wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed.

The boundaries of all areas to be newly disturbed (including solar facility areas, staging areas, access roads, and sites for temporary placement of construction materials and spoils) will be delineated with stakes and flagging prior to disturbance. All disturbances, vehicles, and equipment will be confined to the flagged areas.

No potential wildlife entrapments (e.g., trenches, bores) will be left uncovered overnight. Any uncovered pitfalls will be excavated to 3:1 slopes at the ends to provide wildlife escape ramps. Alternatively, man-made ramps may be installed. Covered pitfalls will be covered completely to prevent access by small mammals or reptiles.

To avoid wildlife entrapment (including birds), all pipes or other construction materials or supplies will be covered or capped in storage or laydown area, and at the end of each work day in construction, quarrying and processing/handling areas.

No pipes or tubing of sizes or inside diameters ranging from 1 to 10 inches will be left open either temporarily or permanently.

No anticoagulant rodenticides, such as Warfarin and related compounds (indandiones and hydroxycoumarins), may be used within the project site, on off-site project facilities and activities, or in support of any other project activities.

Avoid wildlife attractants. All trash and food-related waste shall be placed in self-closing containers and removed regularly from the site to prevent overflow. Workers shall not feed wildlife. Water applied to dirt roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards to prevent the formation of puddles, which could attract wildlife. Pooled rainwater or floodwater within retention basins will be removed to avoid attracting wildlife to the active work areas.

To minimize the likelihood for vehicle strikes on wildlife, speed limits will not exceed 15 miles per hour when driving on access roads. All vehicles required for O&M must remain on designated access/maintenance roads.

Avoid night-time construction lighting or if nighttime construction cannot be avoided use shielded directional lighting pointed downward and towards the interior of the project site, thereby avoiding illumination of adjacent natural areas and the night sky.

All construction equipment used for the Project will be equipped with properly operating and maintained mufflers.

Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel hand-held equipment, will be stored within secondary containment when within 50 feet of open water to the fullest extent practicable. Secondary containment will consist of a ring of sand bags around each piece of stored equipment/structure. A plastic tarp/visqueen lining with no seams shall be placed under the equipment and over the edges of the sandbags, or a plastic hazardous materials secondary containment unit shall be utilized by the Contractor.

The Contractor will be required to conduct vehicle refueling in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species. Any fuel containers, repair materials, including creosote-treated wood, and/or stockpiled material that is left on site overnight, will be secured in secondary containment within the work area and staging/assembly area and covered with plastic at the end of each work day.

In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor will ensure that all portable fuel containers are removed from the project site.

All equipment will be maintained in accordance with manufacturer's recommendations and requirements.

Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan or equivalent, Materials Safety Data Sheets, and any specifications required by other permits issued for the project.

The Contractor will utilize off-site maintenance and repair shops as much as possible for maintenance and repair of equipment.

If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment will be used to capture spills/leaks within all areas. Where feasible, maintenance of equipment will occur in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species.

Appropriate BMPs will be used by the Contractor to control erosion and sedimentation and to capture debris and contaminants from bridge construction to prevent their deposition in waterways. No sediment or debris will be allowed to enter the creek or other drainages. All debris from construction of the bridge will be contained so that it does not fall into channel. Appropriate BMPs will be used by the Contractor during construction to limit the spread of resuspended sediment and to contain debris.

Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.

Firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment.

Cross-country vehicle and equipment use outside of approved designated work areas and access roads shall be prohibited to prevent unnecessary ground and vegetation disturbance.

Any injured or dead wildlife encountered during project-related activities shall be reported to the project biologist, biological monitor, CDFW, or a CDFW-approved veterinary facility as soon as possible to report the observation and determine the best course of action. For special-status species, the Project Biologist shall notify the County, USFWS, and/or CDFW, as appropriate, within 24 hours of the discovery.

Stockpiling of material will be allowed only within established work areas.

Actively manage the spread of noxious weeds (See Mitigation Measure BIO-5)

The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving.

BIO-3 Worker Environmental Awareness Program.

Prior to project construction, a Worker Environmental Awareness Program shall be developed and implemented by a qualified biologist, and shall be available in both English and Spanish. Handouts summarizing potential impacts to special-status biological resources and the potential penalties for impacts to these resources shall be provided to all construction personnel. At a minimum, the education program shall including the following:

the purpose for resource protection;

a description of special status species including representative photographs and general ecology;

occurrences of USACE, RWQCB, and CDFW regulated features in the Project study area;

regulatory framework for biological resource protection and consequences if violated;

sensitivity of the species to human activities;

avoidance and minimization measures designed to reduce the impacts to special-status biological resources;

environmentally responsible construction practices;

reporting requirements;

the protocol to resolve conflicts that may arise at any time during the construction process; and workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed and would be kept on record.

BIO-4 Desert Tortoise Avoidance and Minimization

A qualified biologist shall conduct focused presence/absence surveys for Desert Tortoise for 100-percent of the project footprint pursuant to the October 19, 2019 Version of the USFWS Desert Tortoise Survey Protocol. If no live desert tortoise or sign of active desert tortoise if detected, no further avoidance and minimization is required.

If live desert tortoise or sign of active desert tortoise is detected, the project proponent shall initiate consultation with USFWS and CDFW to obtain the necessary federal and state ESA authorizations and the following avoidance, minimization and compensatory mitigation measures will be implemented:

Permanent tortoise-proof fencing shall be along the perimeter of the project site. Fencing shall be installed, inspected, and maintained according to specifications in the current USFWS *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)*. An authorized desert tortoise biologist shall conduct pre-construction clearance surveys for the project site no more than 14-days prior to the initiation of fence installation. All potentially active burrows shall be identified for hand excavation. Pre-construction clearance surveys shall be repeated within the fenced impact area after fence installation is complete. If desert tortoise are observed they shall be relocated from within the work area to outside the fenced area by a permitted biologist.

The authorized biologist shall conduct desert tortoise pre-construction clearance surveys along all existing and new dirt access road alignments, and the Gen-tie alignment before any ground disturbing activities are initiated and prior to the start of construction activities each day during ground-disturbing activities and weekly thereafter. Relocate desert tortoises as necessary. Any handling of special-status species must be approved by the appropriate Federal and State agencies and be done in accordance with species-specific handling protocols.

Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of the authorized biologists with demonstrated prior experience with this species.

Inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat, before the materials are moved, buried, or capped.

Incorporate Raven Management into the Pest Control Plan (See BIO-5)

Inspect the ground under vehicles and equipment for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, an authorized biologist or biological monitor under the direction of the authorized biologist may remove and relocate the animal to a safe location.

All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages. If possible, pipes and culverts greater than 3 inches in diameter would

be stored on dunnage to prevent wildlife from taking refuge in them, to the extent feasible.

To fully mitigate for habitat loss and potential take of the Mojave desert tortoise, the Applicant will provide compensatory mitigation at a ratio of 1:1 3:1. For the purposes of this measure, the project site (i.e., footprint) means all Project areas with new direct ground disturbance during construction and operation of the Project. This includes all lands directly disturbed that will no longer provide viable long-term habitat for the Mojave desert tortoise, such as the solar field, substation and new access roads. Areas within the gen-tie line corridor where no ground disturbance will occur are not included in the area to be mitigated through compensation. Compensatory mitigation could include agency-approved payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on preservation lands; or a combination of the three.

BIO-5 Prepare and Implement an Operation and Maintenance Worker Education Plan.

An Operation and Maintenance Worker Education Plan shall be prepared to advise personnel on general operations measures. The Worker Education Plan shall be submitted to the County of Imperial Planning and Development Services Department for review and approval prior to issuance of building permits. The following provisions shall be included in the Worker Education Plan and implemented throughout the operational lifespan of the Project: Operation and maintenance personnel shall be prohibited from:

Exceeding nighttime and daytime vehicle speeds of 10 miles per hour and 25 miles per hour, respectively, within the facility, on access roads and within the Gen-Tie line corridor. Speed limit signs shall be posted throughout the project site to remind workers of travel speed restrictions.

Harming, harassing, or feeding wildlife and/or collecting special-status plant or wildlife species.

Disturbing active avian nests

Traveling (either on foot or in a vehicle) outside of the Project footprint except on public roads.

Littering on the Project area.

Allowing persons not employed at the facility to remain on site after daylight hours.

Exceeding normal nighttime operational noise or lighting levels

Bringing domestic pets and firearms to the site.

The Operation and Maintenance Worker Education Plan shall require that:

All operation and maintenance vehicles and equipment park in approved designated areas only.

The project site and Gen-Tie line corridor be kept clear of trash and other litter to reduce the attraction of opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species.

Operation and maintenance employees maintain Hazardous Materials Spill Kits on-site. All operation and maintenance staff shall be trained in how to use Hazardous Materials Spill Kits in the event of a spill.

An approved Long-Term Maintenance Plan for the retention/detention basins be developed and implemented.

Weed and Raven management shall be addressed in a project-specific pest management plan (See BIO-5)

Maintain shielding on external lighting to direct down and towards the project site and away from adjacent undeveloped land.

Workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed and would be kept on record

desert tortoise avoidance and minimization measures be implemented if desert tortoise is detected during pre-construction surveys

The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving.

Personnel are trained to avoid causing wildfires and manage them safely and promptly if necessary

BIO-6 Burrowing Owl Avoidance and Minimization.

Take Avoidance (pre-construction) surveys for burrowing owl shall be completed prior to project construction. Surveys shall be conducted as detailed within Appendix D of the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game [CDFG] 2012). If burrowing owl is not detected, construction may proceed.

If burrowing owl is identified during the non-breeding season (September 1 through January 31), then a 50 meter buffer will be established by the biological monitor.

Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until a CDFW-approved exclusion plan has been implemented. The buffer distance may be reduced if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities.

If burrowing owl is identified during the breeding season (February 1 through August 31), then an appropriate buffer will be established by the biological monitor in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until young have fledged. The buffer distance may be reduced in consultation with CDFW if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities.

BIO-7 Pre-Construction Nesting Bird Surveys.

To the extent possible, construction shall occur outside the typical avian breeding season (February 15 through September 15). If construction must occur during the general avian breeding season, a pre-construction nest survey shall be conducted within the impact area and a 500-foot (150-meter) buffer by qualified biologist no more than 7 days prior to the start of vegetation clearing and/or ground disturbing construction activities in any given area of the Project footprint. Construction crews shall coordinate with the qualified biologist at least 7 days prior to the start of construction in a given area to ensure that the construction area has been adequately surveyed. A nest is defined as active once birds begin constructing or repairing the nest in readiness for egg-laying. A nest is no longer an "active nest" if abandoned by the adult birds or once nestlings or fledglings are no longer dependent on the nest. If no active nests are discovered, construction may proceed. If active nests are observed that could be disturbed by construction activities, these nests and an appropriately sized buffer (typically a 200-foot (61-meter) buffer for non-raptor species nests and at least a 500-foot (150-meter) buffer for raptor or federally listed species nests) would be avoided until the young have fledged. Final construction buffers or setback distances shall be determined by the qualified biologist in coordination with USFWS and CDFW on a case-by-case basis, depending on the species, season in which disturbance shall occur, the type of disturbance, and other factors that could influence susceptibility to disturbance (e.g., topography, vegetation, existing disturbance levels, etc.). Active nests shall be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated to the nesting birds or their young. If vegetation clearing and/or ground disturbing activities cease for 14 or more consecutive days during the nesting season in areas where suitable nesting habitat remains, repeat nesting bird surveys shall be required to ensure new nesting locations have not been established within the impact area and the defined buffers.

BIO-8 Develop a Bird and Bat Conservation Strategy (BBCS).

A BBCS shall be developed by the Project Applicant in coordination with the County of Imperial, USFWS, and CDFW.

The BBCS will include the following components:

A description and assessment of the existing habitat and avian and bat species;

An avian and bat risk assessment and specific measures to avoid, minimize, reduce, or eliminate avian and bat injury or mortality during all phases of the project.

A post-construction monitoring plan that will be implemented to assess impacts on avian and bat species resulting from the Project.

The post-construction monitoring plan will include a description of standardized carcass searches, scavenger rate (i.e., carcass removal) trials, searcher efficiency trials, and reporting. Statistical methods will be used to estimate Project avian and bat fatalities if sufficient data is collected to support statistical analysis.

An injured bird response plan that delineates care and curation of any and all injured birds.

A nesting bird management strategy to outline actions to be taken for avian nests detected within the impact footprint during operation of the Project.

A conceptual adaptive management and decision-making framework for reviewing, characterizing, and responding to monitoring results.

Monitoring studies following commencement of commercial operation of each CUP area. Monitoring results will be reviewed annually by the Applicant and the County of Imperial, in consultation with CDFW and USFWS, to inform adaptive management responses. During Project construction, incidental avian carcasses or injured birds found during construction shall be documented. Should a carcass be found by Project personnel, the carcass shall be photographed, the location shall be marked, the carcass shall not be moved, and a qualified biologist shall be contacted to examine the carcass. When a carcass is detected, the following data shall be recorded (to the extent possible): observer, date/time, species or most precise species group possible, sex, age, estimated time since death, potential cause of death or other pertinent information, distance and bearing to nearest structure (if any) that may have been associated with the mortality, location (recorded with Global Positioning System), and condition of carcass.

If any federal listed, state listed or fully protected avian carcasses or injured birds are found during construction or post-construction monitoring, the Project Applicant shall notify USFWS and CDFW within 24 hours via email or phone and work with the resource agencies to determine the appropriate course of action for these species. For such listed species, the CUP owner

shall obtain or retain a biologist with the appropriate USFWS Special Purpose Utility Permit(s) and CDFW Scientific Collecting Permit(s) to collect and salvage all dead and injured birds, and store/curate them in freezers for later disposition and analysis.

BIO-9 Pre-Construction Surveys for American Badger.

Preconstruction surveys shall be conducted by a qualified biologist for the presence of American badger dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for American badger, which include desert scrub habitats. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the project site disturbed. If potential dens are observed and avoidance is feasible, the following buffer distances shall be established prior to construction activities:

American badger potential den: 30 feet.

American badger active den: 100 feet.

American badger natal den: 500 feet.

If avoidance of the potential dens is not possible, the following measures are required to avoid potential adverse effects to the American badger

Outside the reproductive season defined as February 1 through September 30 for American badger if the qualified Lead Biologist determines through camera monitoring for three consecutive days that potential dens are inactive, the biologist shall excavate these dens by hands with a shovel to prevent American badgers from re-using them during construction.

Outside of the reproductive season defined as February 1 through September 30 for American badger if the Lead Biologist determines that potential dens may be active, an onsite passive relocation program shall be implemented. This program shall consist of excluding American badgers from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for seven days to confirm usage has discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that American badgers have stopped using the dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent use during construction.

BIO-10 Compensatory Mitigation for Riparian Woodland and Ephemeral Wash.

Following the completion of project construction, Palo Verde- Ironwood Woodland will be created, enhanced and or conserved within the undeveloped portions of the

project site at a ratio of 3:1 (i.e., 3 acres created or enhanced for each acre impacted)by permanent or temporary project activities).

Permanent impacts to jurisdictional waters and wetlands shall be mitigated at a minimum 1:1 ratio either through on-site and/or off-site re-establishment, enhancement and conservation of jurisdictional waters or through an approved-mitigation bank or in lieu fee program, if one is available. The type of mitigation, mitigation location and the final mitigation ratios will be established during the permit process for the Project's USACE Section 404 permit, the RWQCB Section 401 Water Quality Certification, and a CDFW Streambed Alteration Agreement.

BIO-11 Develop and Implement a Pest Management Plan.

The Project shall develop and implement a Pest Management Plan that will reduce negative impacts to surrounding (not necessarily adjacent) farmland during construction, operation and reclamation. The Plan shall include:

Methods for Preventing the Introduction and Spread of pests, including weeds.

Monitoring methods for all agricultural pests and weeds with potential to adversely impact adjacent native habitat (Species on California Invasive Plants Council Inventory rated as Moderately to Highly Invasive) to including insects, vertebrates, weeds, and pathogens.

Eradication and Control Methods All treatments must be performed by a qualified applicator or a licensed pest control business.

"Control" means to reduce the population of common pests below economically damaging levels, and includes attempts to exclude pests before infestation, and effective control methods after infestation.
Effective control methods may include physical/mechanical removal, biocontrol, cultural control, or chemical treatments.

Use of "permanent" soil sterilants to control weeds or other pests is prohibited due to the fact that this would interfere with reclamation.

Notification Requirements: o Notify the Agricultural Commissioner's office immediately regarding any suspected exotic/invasive pest species as defined by the California Department of Food Agriculture (CDFA) and the USDA.

Request a sample be taken by the Agricultural Commissioner's Office of a suspected invasive species.

Eradication of exotic pests will be done under the direction of the Agricultural Commissioner's Office and/or CDFA.

Obey all pesticide use laws, regulations, and permit conditions.

Allow access by Agricultural Commissioner staff for routine visual and trap pest surveys, compliance inspections, eradication of exotic pests, and other official duties.

Ensure that all project employees that handle pest control issues are appropriately trained and certified, that all required records are maintained and available for inspection, and that all permits and other required legal documents are current.

Maintain records of pests found and treatments or pest management methods used. Records should include the date, location/block, project name (current and previous if changed), and methods used. For pesticides include the chemical(s) used, EPA Registration numbers, application rates, etc. A pesticide use report may be used for this.

Reporting Methods

Submit a report of monitoring, pest finds, and treatments, or other pest management methods to the Agricultural Commissioner quarterly within 15 days after the end of the previous quarter, and upon request.

The report is required even if no pests were found or treatment occurred. It may consist of a copy of all records for the previous quarter, or may be a summary letter/report as long as the original detailed records are available upon request.

S-10 FIRE PREVENTION BUREAU:

O&M Buildings:

The type of suppression system that will be used for the O&M Building must be described in the project; also the hours and amounts of staffing that wil be used. In addition, include a description of your emergency and hazardous material plan. Provide the square footage of all supporting structures to determine if the buildings will require sprinkler systems.

Road Access and Array Requirements:

Dimensions: Alley roads shall have an unobstructed width of not less than 20 feet (6096 mm), except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm). The width in-between arrays shall be a minimum of 9 feet (2704mm). The width between arrays shall not be less than 10 feet (3048mm). Any array that exceeds a distance in length of 500 feet shall provide a turn around.

Turning radius: The required turning radius of a fire apparatus access road shall be a minimum of 70 by 90 degrees diameter

Access and loading: Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road with an asphalt, all weathered, concrete, or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds (34 050 kg).
Fire apparatus access road gates: Gates securing the fire apparatus access roads shall comply with all of the following criteria:

1. The minimum gate width shall be 20 feet (6096 mm).

2. Gates shall be of the swinging or sliding type.

3. Construction of gates shall be of materials that allow manual operation by one person.

4. Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.

5. Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. Emergency opening devices shall be approved by the fire code official.

6. Locking device specifications shall be submitted for approval by the fire code official

7. Any gates on-site shall have a "Knox" lock and be rapidly accessible by the Imperial County Fire Department/OES

Water Requirement:

1) Provide a 10,000 gallon water storage tank dedicated for fire suppression for any proposed O&M structures.
2) Provide a 10,000 gallon water storage tank dedicated for fire suppression before any combustible material is moved on site for during construction.

Fiscal Impacts:

For operation and maintenance fees associated with Fire Department/OES

(a) Permittee shall pay a fee of $50 per acre per year prior to commencement of the construction period to address the Imperial County Fire/OES expenses for service calls within the project Utility/Transmission area. Said amount shall be prorated on a monthly basis for periods of time less than a full year. Permittee

shall provide advance, written notice to County Executive Office of the construction schedule and all revisions thereto.

Permittee shall pay an annual fee of $20 per acre per year during the post-construction, operational phase of the project to address the Imperial County Fire/OES expenses for service calls within the Project Utility/Transmission area. Said fee will be paid to the Fire Department to cover on-going maintenance and operations cost created by the project.

(b) Cost associated with items two above items shall annually adjusted on January 1st to add a CPI (Los Angeles) increase. Such costs associated with these items can be readjusted in the County's sole discretion if a new service analysis is prepared and that service analysis is approved by both the County and the Permittee.

Fire- In lieu of providing all-weather access roads for fire protection vehicles, the permittee shall be permitted to provide compacted dirt roads (in compliance with ICAPCD's rules and regulations) for fire protection vehicles if prior to the issuance of any grading permit for the Project shall purchase an Fire Engine with All Terrain Capabilities as specified and approved by the Fire Department. The Fire Engine cost estimate will be at Current Market Value for approved Fire Engine. Final Cost, conditions and equipment of the Fire Engine shall be determined prior to the issuance of the initial grading permit. The County agrees to require, as a condition of approval, other developers in the area to reimburse the Applicant for the expenses associated with the purchase of the Fire Engine. The Permittee shall be reimbursed only for those expenses in excess of their proportionate share for the purchase of the Fire Engine that the Permittee would have been required to pay. Furthermore, if a Fire Engine was already purchased by another developer in t the area, then the Permittee shall only be required to pay a fire mitigation in the amount of up to $100 per acre that would represent their proportionate share to reimburse the purchaser of the Fire Engine. The County shall be responsible for the managing the reimbursement component of this condition of approval.

Permittee shall participate in the Imperial County Public Benefit Program for the life of the CUP and shall at all times be a party to a public benefit agreement in a form acceptable to the County Counsel in order to pay for all cost, benefits, and fees associated with the approved project. Approval of this public benefit agreement will be by the Board of Supervisors prior to the issuance of the first building permit.

S-11 PUBLIC SERVICES:

1. If Permittee receives an exclusion of applicable sales and use tax payable to the County of Imperial under Senate Bill 71 under the State Public Resource Code (Section 26003, et al.) and the California Alternative Energy and Advanced Transportation Financing Authority (CAETFA), Permittee shall pay to the County and Local Transportation Authority an amount equal to the sales tax (currently at 1.5%) which would have been received if Permittee had not obtained such exclusion.

   a) Permittee shall require that its general construction contractor exercise its option to obtain a Board of Equalization (BOE) sub-permit for the jobsite and allocate all eligible use tax payments to Imperial County and LTA. Permittee will require that the general contractor provide County of Imperial with either a copy of their BOE account number and sub-permit. To accomplish this, Permittee shall either cause its general construction contractor to treat the project in accordance with California Regulation 1521(b)(2)(B),California Regulation 1521(c)(13)(B), and California Regulation 1826(b) for sales and use tax purposes or form a "Buying Company" as defined in the State of California Board of Equalization Regulation 1699(h). Permittee can adopt an alternate methodology to accomplish this goal if such methodology is approved by the County Executive Officer prior to issuance of building permits. Permittee shall require its general construction contractor to use commercially reasonable best efforts to cause its subcontractors and vendors to obtain similar sub-permits for the jobsite and to allocate all eligible sales and use tax payment to Imperial County and LTA.

   b) Permittee shall direct use taxes on out-of-County taxable purchased construction related items to Imperial County, to the extent permitted and consistent with state use tax law.

   c) Permittee shall use its best efforts, consistent with state law, to source taxable purchases from price competition construction retail vendors within the County of Imperial in order to further source sales to County.

   d) The Permittee shall exclude from assessment and taxation under California Revenue and Taxation Code Section 73 (AB 1451) only that property qualifying as an Active Solar Energy System, pursuant to the applicable guidelines issued by the Board of Equalization.

2. The Permittee shall widely publicize to County residents the availability of job opportunities associated with the project (whether or not those job opportunities are within Imperial County or are regional). Since the majority of the population residents in the incorporated Cities of the County, dissemination of the information should be relatively easy. Postings at City Halls, newspaper and television advertisements, local job centers, and dedicated website shall offer sufficient avenues of communication. The Imperial County Office of Employment and Training in addition to the Imperial Valley College presents viable sources for

community awareness. The information shall provide available positions, details of positions including qualifications, number of openings, indicated the anticipated start date for each, and application process. In order to maintain oversight of the process, the application process can be completed both on a dedicated website and at dedicated computers at the County which would afford those without Internet connection the ability to apply. The Permittee's information shall be forwarded to the Permittee or their contractor and copies of applications files are maintained at the County.

3. During the development phase of the project, the Permittee shall provide a roster of employees to include their position and place of residence. Permittee shall also attempt to coordinate a ride-share program with Caltrans and other regional employers to facilitate the employment of Imperial County residents in jobs related to this project.

4. Unless prohibited by local, state or federal law or regulation, Permittee shall make good faith efforts to hire qualified residents of the Imperial County with the objective that a majority of the total work force is comprised of the Imperial County residents.

5. The Permittee shall install and implement security measures which may include, but not limited to, secured perimeter fencing with barbed wire, sensors, with controlled access points, security alarms, security camera systems, security guard vehicle patrols to deter trespass or unauthorized activities that would interfere with operation of the proposed project.

6. Permittee shall compensate the County pursuant to the Department of Environmental Health Fee Schedule for any costs of calls related to bees and mosquitoes.

7. The Permittee shall reimburse the Sheriff's Department for any investigations regarding theft on the Project site and related law enforcement.

8. Permittee shall enter into a Public Benefit Agreement with the County of Imperial to provide for a monetary benefit payable to the County to maximize the benefits of the Project to the Imperial County prior to the issuance of the first Building/Grading permit.

9. All construction supervisors and foremen shall be provided with communication devices, cell phones or walkie-talkies, in the event of an emergency situation on-site.

10. For operation and maintenance fees associated with Fire Department/OES:

    a. Permittee shall pay a fee of $50 per acre per year prior to commencement of the construction period to address the Imperial County Fire/OES expenses for service calls within the Project's Utility/Transmission area. Said amount

shall be prorated on a monthly basis for periods of time less than a full year. Permittee shall provide advance, written notice to County Executive Office of the construction schedule and all revisions thereto.

b. Permittee shall pay an annual fee of $20 per acre per year during the post-construction, operational phase of the Project to address the Imperial County Fire/OES expenses for service calls within the Project's Utility/Transmission area. Said fee will be paid to the Fire Department to cover on-going maintenance and operations costs created by the project.

c. Costs associated with items two above items shall be annually adjusted on January 1st to add a CPI (Los Angeles) increase. Such costs associated with these items can be readjusted in the County's sole discretion if a new service analysis is prepared and that service analysis is approved by both the County and the Permittee.

S-12 COMMENCEMENT OF WORK:

1. Permittee shall commence construction of the permitted activities or provide substantial evidence of substantial progress within 12 months from the effective date of this permit, i.e. approval date.

S-13 CONSTRUCTION STANDARDS

1. The solar energy facility structures shall be built in accordance with the California Building Code requirements applicable to "Seismic Category D". All structures and facilities shall be designed in accordance with the publication entitled "Recommended Lateral Force Requirements and Commentary by the Structural Engineers Association of California". The structural components of the permitted facilities shall be reviewed by the Building Official/Planning and Development Services Director. Applicable building permits shall be procured from the County for facilities prior to commencement of construction of such facilities.

S-14 EMERGENCY RESPONSE/ACTION PLAN:

1. The Permittee shall prepare an Emergency Response/Action Plan that has been approved by the Imperial County Fire/OES Department, and the Local Enforcement Agency. Any hazardous materials storage areas shall be designed with curbs or other containment measures, e.g. double-walled storage tanks, to contain spills and leaks and if on-site hazardous materials exceed 55 gallons, a "Hazardous Material Management Plan" shall be prepared and approved by the County LEA and CUPA.

2. The Emergency Response/Action Plan shall cover all possible emergencies, e.g. major fluid spills, earthquakes, fires, floods or other emergencies. At all times, there shall be at least one employee either on the facility premises or on-call (i.e., available to respond to an emergency by reaching the facility within a short period

of time) with the responsibility of coordinating all emergency response measures. This Emergency Coordinator shall be thoroughly familiar with all aspects of the solar facility's Emergency Response/Action Plan, all operations and activities at the facility, location of all records within the facility and the facilities layout. This person shall have the authority to commit the resources needed to carry out the contingency plan. Adequate personnel and equipment shall be available to respond to emergencies and to insure compliance with the conditions of the permit.

3. The Emergency Response/Action Plan shall be prepared in consultation with, but not be limited to, the Imperial County Fire Protection/Office of Emergency Services, County Environmental Health Services/Health Department, County Sheriff/Coroner's office, County Public Works Department, Planning and Development Services Department, and other appropriate state and county agencies. The plan shall include a notification list of response agencies which shall be notified immediately upon the discovery of a reportable unauthorized discharge and the list shall include: Imperial Fire Protection/Office of Emergency Services, Planning and Development Services Department, County Environmental Health Services/Health Department, County Department of Public Works (DPW), California Highway Patrol, as applicable.

4. All employees shall be trained by classroom and hands-on training on safety procedures, maintenance programs and emergency response protocols to ensure safety and reliability in the event of an unforeseen emergency situation.

5. The Permittee shall provide adequate safety devices against the hazard of fire and explosion for activities that involve the use and storage of flammable, explosive or highly corrosive or reactive materials as well as provide adequate fire-fighting and fire suppression equipment and using devices standard within the industry in compliance with all applicable state and local laws as determined by the Fire Chief, Office of Emergency Services.

6. The Permittee shall implement all State and County-approved worker safety and fire protection plans and programs.

7. Any gates on-site shall have a "knox" lock and be rapidly accessible by the Imperial Fire Protection/Office of Emergency Services.

8. Appropriate first aid provisions for facility operations shall be made for emergency response during Project construction, operation, and maintenance activities with appropriate first aid training for Project employees.

9. During construction, a member of each working crew shall be trained in basic first aid and supplied with necessary medical equipment to respond to emergencies as provided for in the Emergency Response/Action Plan required above.

10. Permittee shall identify a responsible agent for emergency purposes, whose name, title, e-mail address and telephone number, which shall be provided to the County Department of Public Works, County Fire Protection/OES Department, County

Environmental Health Services/Health Department, County Sheriff/Coroner's office, Imperial Irrigation District (IID), and County Planning and Development Services Department.

S-15 LAND USE IMPROVEMENTS

1. The Permittee shall prepare an appropriate parking plan for review and approval by the County Planning and Development Services and County Public Works Department for all proposed Operation & Maintenance buildings if applicable.

2. The Permittee shall surface with a minimum of three (3) inches of asphaltic concrete paving or material of higher quality all access drives, parking areas, and vehicular maneuvering areas from Simpson Road to any constructed operation and maintenance buildings.

3. Prior to any grading permit issuance, the Imperial County Building Official and or Planning and Development Services Director shall review and approve of the Floodplain Development Permit" for (APN 025-260-024-000 & 025-280-003-000) within any area of special flooding hazards or areas of mudslides (i.e. mudflow) established in Section 91603.01 of the Imperial County Land Use Ordinance.

S-16 NOISE STANDARDS:

1. During the construction period, heavy truck traffic to/from the solar facilities shall be limited to the hours between 7:00 AM and 7:00 PM. If construction is needed outside the standard hours of operation, the Permittee will be required to submit a request to the Planning & Development Services Director.

2. During construction, in accordance with Imperial County Noise Element of the General Plan, the noise level shall not exceed 75 dBA_{Leq} at the property boundary when averaged over an 8-hour period.

3. During operation of the facility, the maximum permitted continuous sound level shall be not more than 45 dBA_{Leq}, as measured at the nearest residence using the "A" scale and measured with a sound level meter and associated octave band analyzer. The level may be exceeded by ten percent (10%) if the noise is intermittent and during daylight hours.

4. Haul trucks and other engine-powered equipment shall be muffled and operated with engine exhaust brake use limited to emergencies.

S-17 ODOR CONTROL.

1. The Permittee shall control all odor-causing, harmful, noxious emissions to insure that quantities or air contaminants released as a result of the permitted facilities do

not exceed County, State or Federal standards, nor constitute a public nuisance, per the Land Use Ordinance, Division 13, Enforcement, Chapter 2, Abatement of Nuisances, Sections 91302.00 through 91301.02.

S-18 PLAN APPROVALS:

1. Permittee shall submit to the County Planning and Development Services Department, architectural, landscaping and lighting plans prior to construction of those facilities, to include painting of structures, planting of trees and/or vegetation, and shall receive all approvals prior to commencing construction of the applicable permitted facilities. Approval shall not be unreasonably withheld so long as the plans are consistent with applicable Land Use Ordinance requirements.

S-19 PROJECT DESIGN:

1. All facility access and parking areas shall be constructed to the standards of the Land Use Ordinance.

2. All permitted activities shall provide for the minimum feasible surface land disturbance for compatibility with the existing uses wherever possible.

3. All equipment and electrical interconnection facilities used at the solar plant facilities shall be maintained in a manner that prevents breaking, cracking, and leaking, e.g. operator staffing and training, including appropriate quality assurance procedures, with the operation of back-up or auxiliary facilities when necessary.

4. A Storm-water Pollution Prevention Plan (SWPPP) shall be prepared for construction of the project in accordance with the requirements of the County of Imperial and the RWQCB (See S-8, Hydrology and Water Quality, Item #1).

5. All on-site basins shall be designed and constructed under the supervision of a California-licensed Civil Engineer meeting sound engineering standards, with all applicable regulations and all requirements of the County Environmental Health Services/Health Department and Public Works Departments are complied with.

6. Obtain encroachment permits for any construction or operation on IID existing right of way or easements.

S-20 REPORTING AND MONITORING:

1. The Permittee shall furnish to the County, within a reasonable time, any relevant reports/information which the County requires for monitoring purposes to determine whether cause exists for revoking this permit, or to determine compliance with this permit. The Permittee shall submit all required reports to the Planning Director, County Planning and Development Services Department, 801 Main Street, El Centro, CA 92243.

2. Permittee and Imperial County Development Services Department Director shall agree upon a third party environmental consultant for overseeing all the required mitigation, conditional use permit conditions and public benefit agreement requirements during the construction of project.

3. Permittee shall pay for this third party environmental consultant monitoring and compliance through a memorandum of understanding (MOU) between the County of Imperial, the Developer and the third party consultant. This environmental consultant shall oversee and manage the entire team of specialists needed for the environmental compliance of project, i.e. biologist, cultural experts, burrowing owls monitoring, etc.

4. The Planning and Development Services Department, in consultation with the third party Environmental Consultant and the County Executive Office, will require that all mitigation measures be satisfied, all mitigation monitoring and Reporting Program requirements have been satisfied, all Conditions of Approval in the Conditional Use Permit are in full compliance and all conditions of the Development Agreement have been satisfied before the Final Certificate of Occupancy Certificate is issued.

5. During the operation of solar facility, an Annual Compliance Report shall be submitted to the Planning & Development Services Department, documenting the implementation of the conditions and general measures as well as any resource-specific measures.

6. The Permittee shall reimburse the Imperial County Planning & Development Services Department for monitoring and investigations related to the construction and operation of the Project. Permittee shall compensate the County pursuant to the Imperial County Planning & Development Services Department Fee Schedule for any costs incurred.

Permittee shall pay for all costs as required to comply with the Conditions of Approval, and shall implement all required mitigation measures as indicated in the Final Environmental Impact Report (FEIR) and Mitigation Monitoring, Reporting Program (MMRP). If mitigation measures for FEIR and MM&RP are more stringent than the conditions in this permit, the FEIR & MM&RP mitigations will be required.

S-21 SPILLS AND RUNOFF:

1. The Permittee shall design and construct the permitted facilities to prevent spills from endangering adjacent properties and to prevent runoff from any source being channeled or directed in an unnatural way so as to cause erosion, siltation, or other detriments pursuant to the construction Storm Water Pollution Prevention Plan approved by the Regional Water Quality Control Board.

S-22 SOLAR FACILITIES CLOSURE AND SITE RESTORATION:

1. Permittee shall implement the site restoration plan as outlined within the plan when the operation of the permitted facilities herein authorized has ceased, all facilities shall be dismantled, and the lands involved restored to their pre-construction condition and available for agricultural production uses as agreed to by the County Planning and Development Services Director. Within thirty (30) days prior to ground disturbance, a Bond, or other acceptable surety, in the amount of the estimated site restoration financial calculations/bond, for the developed project area as specified in the [or grading plan(s) area], or other forms of security acceptable to County Counsel's office, shall be filed with the County that guarantees restoration of the land to its condition prior to the permitted solar plant development. Upon completion of such site restoration, and demonstration that the land has been restored to the current existing condition prior to the permitted solar plant development the Bond or other surety shall be released by the County.

2. The above financial calculations/bond shall be reviewed every five (5) years in December and adjusted on January 1st to add a CPI (Los Angeles) increase by the Planning and Development Services Director. This readjustment can be made in the County's sole discretion if approved by both the County and the Permittee.

S-22 PUBLIC WORKS

1. Cuff Road is classified as Local County (Residential)-two (2) lands, requiring sixty feet (60) of right of way, being thirty (30) feet from existing centerline. It is required that sufficient right of way be provided to meet this road classification.

2. Wilkins Road is classified as Minor Collector-Local Collector, two (2) lanes, requiring seventy (70) feet of right of way, being thirty (30) feet from existing centerline. It is required that sufficient right of way be provided to meet this road classification

3. According to the County of Imperial Codified Ordinances, any site plan submitted with an application for permitting shall show the dimensions, which includes bearings, of all properties lines. All distances from the property lines(s) to the structures shall also be shown on the site plan. The applicant shall revised the site plan and submit at the earliest convenience.
4. The access road on the east side of the property connecting to Cuff Road (Gas Line Road) as illustrated on Figure 3-3 of the Project Description Document has the

potential to encroach into Zone A of the FEMA Flood Insurance Map Panel 06025C0450C.

5. The findings of the Initial Study under Section X-Hydrology and Water Quality, Subsection c) iv, shall state that either no access road will be constructed within the flood zone or that mitigation measures will be provided during the EIR.

6. Section XVII – Transportation, Subsection d), of the Initial Study refers to site emergency access and is evaluated as having Less than Significant Impacts. This section does not make a mention of access roads from the project site to County roads.

The findings on Section XVII-Transportation, Subsection d), of the Initial Study shall include impacts the access road east of the project site to Cuff Road (Gas Line Road and the two access roads west of the project site to Wilkins Road. This finding shall be revised to be Potential Significant Impact.

Prior to development, the developer shall meet the following requirements:

A. Any access roads to the project site shall abut to County roads. Access roads through private properties shall require easement from property owners.

B. Any activities and/or work within Imperial County right-of-way shall be completed under a permit issued by this Department (encroachment permit) as per Chapter 12.12.-Excation on or Near a Public Road of the Imperial County Ordinance.

   a. Any activity and/or work may include, but not be limited to, the installation of temporary stabilized construction entrances, primary access driveways, secondary emergency access driveways, site fence installation, underground/overhead electrical crossing, road improvements, temporary traffic control, etc.

C. Corner record is required to be filed with the Imperial County Surveyor for monuments prior to construction:

8771. (b) When monuments exist that control the location of subdivision, tracts, boundaries, roads, streets, or highways, or provide horizontal or vertical survey control, the monuments shall be located and referenced by or under the direction of a licensed land surveyor or licensed civil engineer legally authorized to practice land surveying, prior to the tie when any streets, highways, other right-of-way, or easement are improved, constructed, reconstructed, maintained, resurfaces, or relocated, and a corner record or record of survey of the reference shall be filed with the county surveyor.

D. A second corner record is required to be filed with the Imperial County Surveyor for monuments:

8771. (c) A permanent monument shall be reset in the surface of the new construction or a witness monument or monuments set to perpetuate the location if any monument could be destroyed, damaged, covered, disturbed, or otherwise obliterated, and a corner record or record of survey shall be filed with the county surveyor prior to the recording of a certificate of completion for the project. Sufficient controlling monuments shall be retained or replace in their original positions to enable property, right -of-way and easement lines, property corners, and subdivision and tract boundaries to be reestablished without devious surveys necessarily originating on monuments differing from those that currently control the area.

E. The Developer will be required to repair any damage caused to County roads by construction traffic during construction and maintain them in safe conditions.

F. All off-site improvements within Imperial County right-of-way shall be financially secured by either a road improvement bond or letter of credit prior to issuance of a grading permit, building permit, and encroachment permit.

G. Prior to the issuance of grading and building permits, the Developer shall complete the installation of temporary stabilized construction entrances and secondary emergency access driveways.

H. Prior to issuance of final certificate of occupancy, the Developer shall be responsible for repairing any damage caused to County roads and bridges during construction as determined by the Imperial County Road Commissioner.

I. The Developer shall furnish a Drainage and Grading Plan/Study to provide for property grading and drainage control, which shall also include prevention of sedimentation of damage to off-site properties. The Study/Plan shall be submitted to the Department of Public Works for review and approval. The Developer shall implement the approved plan. Employment of the appropriate Best Management Practices (BMP's) shall be included.

J. Any permanent structures shall be located outside of the ultimate County Right-of Way.

K. Off-site improvement shall be constructed in compliance with the material specifications, horizontal/vertical alignments and notes of engineered approve project plans and shall conform to County of Imperial Department of Public works Engineering Design Guidelines Manual.

L. On-site read shall be constructed on compacted Class II Aggregate Base.

M. Primary and secondary emergency access driveways from paved roads shall be constructed of Asphalt Concrete Pavement. Primary and secondary emergency access driveways from unpaved roads shall be constructed of Class II Aggregate Base.

N. The Developer shall prepare and submit a haul route study for the proposed construction haul route to evaluate any impacts to County roads. Said study shall be submitted to this Department for review and approval. The haul route study shall include pictures and/or other documents to verify the existing conditions of the impacted County roads before construction begins. The haul route study shall also include recommended mitigation improvements to impacted County roads along with any fair share costs for such improvements.

O. The Developer shall enter into a Roadway Maintenance Agreement with the County of Imperial prior to issuance of a Certificate of Occupancy. The Developer shall provide financial security to maintain the roads on the approved haul route study during construction.

INFORMATIVE:

The following items are for informational purposed only. The Developer is responsible to determine if the enclosed items affect the subject project.

- All solid and hazardous waste shall be disposed of in approved solid waste disposal sites in accordance with existing County, State and Federal regulations (Per Imperial County Code of Ordinances, Chapter 8.72).

- All on-site traffic areas shall be hard surfaced to provide all weather access for emergency vehicles.

- The project may require a National Pollutant Discharge Elimination System (NPDES) permit and Notice of Intent (NOI) from the Regional Water Quality control Board (RWQCB) prior to County approval of onsite grading permit (40 CFR 122.28).

- A Transportation Permit may be required from road agency(s) having jurisdiction over the haul route(s) for any hauls of heavy equipment and/or large vehicles which impose greater than legal loads on riding surfaces, including bridges. (Per Imperial County Code of Ordinances, Chapter 10.12-Overweight Vehicles and Loads.

- As this project proceeds through the planning and the approval process, additional comments and/or requirements may apply as more information is received.

S-23 WASTE DISPOSAL

The Permittee shall insure that all solar plant facilities waste, liquid, gas or solid, which are generated on-site shall be disposed of in compliance with appropriate local, state, and federal regulations, in effect or as subsequently duly-enacted. All solid waste debris and/or any hazardous wastes located on the Project site must be satisfactorily removed to a permitted facility prior to the commencement of grading earthen material at the site.

1. Littering shall not be allowed. Project personnel shall not deposit or leave any food or waste in the Project area, and no biodegradable or non-biodegradable debris shall remain in the right-of-way or on the Project site following completion of construction.

S-24 CALTRANS

1. An encroachment permit shall be required for any work performed within Caltrans right-of-way. If required, any traffic control will need to be addressed as part of Caltrans permit approval. Stoppage of traffic for placement of aerial lines, installation or removal of overhead conductors crossing a highway requires traffic control will be addressed in accordance with the Caltrans Standard Plans and the California Manual on Uniform Traffic Control Devices (MUTCD).

2. Any work performed within Caltrans right-of-way must provide an approved final environmental document including the California Environmental Quality Act (CEQA) determination addressing any environmental impacts within the Caltrans right-of-way and any corresponding technical studies, if required. If these materials are not included with the encroachment permit application, the Permittee will be required to acquire and provide these to Caltrans before the permit application will be accepted. Identification of avoidance and/or mitigation measures will be a condition of encroachment permit approval as well as procurement of any necessary regulatory and resource agency permits.

S-25 ACCEPTANCE:

Acceptance of this permit shall be deemed to constitute agreement by Permittee with all terms and conditions herein contained.

The rest of this page is intentionally left blank.

NOW THEREFORE, County hereby issues the Conditional Use Permit #18-0040, and Permittee hereby accepts such permit upon the terms and conditions set forth herein.

IN WITNESS THEREOF, the parties hereto have executed this Agreement the day and year first written.

PERMITTEE -ORNI 33, LLC

Connie Stechman

~~Melissa Wendt, Director~~ Connie Stechman
~~Project Development~~ Secretary
ORNI 33, LLC

3/11/21
Date

COUNTY OF IMPERIAL, a political subdivision of the STATE OF CALIFORNIA

James A. Minnick, Director
Planning & Development Services
Department

3/15/21
Date

PERMITTEE NOTARIZATION

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

Dated 3-11-2021

STATE OF ~~CALIFORNIA~~ Nevada

COUNTY OF Washoe } S.S.

On March 11, 2021 before me, Casey Fleischer a Notary Public in and for said Washoe County and Nevada State, personally appeared Connie Steckman, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of ~~California~~ Nevada that the foregoing paragraph is true and correct.

WITNESS my hand and official seal

CASEY FLEISCHER
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 02-76271-2 - Expires January 17, 2025

Signature _____

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document _____

Number of Pages _____ Date of Document _____

Signer(s) Other Than Named Above _____

Dated _____

COUNTY NOTARIZATION

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA

COUNTY OF IMPERIAL } S.S.

On MARCH 15 2021 before me, PATRICIA A. VALENZUELA a Notary Public in and for said County and State, personally appeared JAMES A. MENNECK, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal

Signature Patricia A. Valenzuela

PATRICIA A. VALENZUELA
Notary Public - California
Imperial County
Commission # 2346629
My Comm. Expires Feb 12, 2025

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could Prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document Conditional Use Permit

Number of Pages 49 Date of Document March 11, 2021

Signer(s) Other Than Named Above —

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Recording Requested By and
When Recorded Return To:

Imperial County Planning & Development Services Department
801 Main Street
El Centro, California 92243

AGREEMENT FOR CONDITIONAL USE PERMIT #20-0006
FOR A COMMERCIAL WATER WELL
(ORNI 33, LLC)
(December 17, 2020 by Planning Commission)
(January 26, 2021 by Board of Supervisors)

This Agreement is made and entered into on _____, of 2021 by and between ORNI 33, LLC, (herein referred to as Permittee) and the COUNTY OF IMPERIAL, a political subdivision of the State of California, (hereinafter referred to as "COUNTY").

RECITALS

WHEREAS, Permittee is the owner, lessee or successor in interest in certain land in Imperial County identified as a 640 acre parcel, located at 8601 Wilkins Road, Niland, California, identified as a portion of Northeast Quarter of Section 27, Township 10 South, Range 14 East, SBBM. It is further identified as Assessors' Parcel Number 003-240-001-000.

WHEREAS, Permittee has applied to the County to be allowed to construct and operate a commercial water well to facilitate the Solar Facility commonly referred to as the Wister Solar Energy Facility.

WHEREAS, ORNI 33, LLC. and/or any subsequent owner(s) would be required to and intend to fully comply with all of the terms and conditions of the project as specified in this Conditional Use Permit.

WHEREAS, County, after a noticed public hearing, agreed to issue Conditional Use Permit #20-0006 to Permittee, and/or his or her successor in interest subject to the following conditions:

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*The "GENERAL CONDITIONS" are shown by the letter **"G"**. These conditions are conditions that are either routinely and commonly included in all Conditional Use Permits as "standardized" conditions and/or are conditions that the Imperial County Planning Commission has established as a requirement on all CUP's for consistent application and enforcement. The Permittee is advised that the General Conditions are as applicable as the SITE SPECIFIC conditions!*

GENERAL CONDITIONS:

G-1 ACQUISITION OF PERMITS/LICENSES AND COMPLIANCE WITH GENERAL LAWS:

The Permittee shall obtain, comply with, and maintain all applicable County, State, and Federal permits, licenses, and/or approvals, including, but not limited to those required by Imperial County Planning & Development Services Department, Air Pollution Control District (APCD), County Division of Environmental Health Services (EHS), and Public Works Department. Additionally, Permittee agrees to comply with all applicable laws, ordinances, and/or regulations promulgated by County, State, and Federal jurisdictions whether specified herein or not. Furthermore, Permittee shall submit a copy of such additional permit(s)/license(s) to the Planning & Development Services Department within thirty (30) days of receipt, including amendments or alterations thereto.

G-2 COSTS

The Permittee shall pay any and all amounts as determined by the County to defray all costs for the review of reports, field inspections, enforcement, monitoring, or other activities related to compliance with this permit, County Ordinances, and/or other applicable regulations.

G-3 PERMITS/LICENSES

The Permittee shall obtain any and all local, state, and/or federal permits, licenses, contracts, and/or other approvals for the construction and/or

operation of this project. This shall include, but not be limited to, the County Environmental Health Services/Health Department, Imperial County APCD and the County Public Works Department. Permittee shall also comply with all such permit requirements for the life of the project. Additionally, Permittee shall submit a copy of any such additional permit, license and/or approval to the Planning and Development Services Department within thirty (30) calendar days from the date of receipt when requested.

G-4 RECORDATION:
This permit shall not be effective until it is recorded at the Imperial County Recorders Office, and payment of the recordation fee shall be the responsibility of the Permittee. If the Permittee fails to pay the recordation fee within six (6) months of the approval date, this permit shall be deemed null and void.

G-5 COMPLIANCE/REVOCATION
Upon the determination by the Planning and Development Services Department, (if necessary upon consultation with other Departments or Agency(ies) that the project is or may not be in full compliance with any one or all of the conditions of this Conditional Use Permit, or upon the finding that the project is creating a nuisance as defined by law, the PERMIT and the noted violation(s) shall be brought immediately to the attention of the appropriate enforcement agency or to the Planning Commission for hearing to consider appropriate response including but not limited to the revocation of the CUP or to consider possible amendments to the CUP. The hearing before the Planning Commission shall be held upon due notice having been provided to the Permittee and to the public in accordance with established ordinance/policy.

G-6 PROVISION TO RUN WITH LAND
The provisions of this project are to run with the land/project and shall bind the current and future owner(s) successor(s) of interest, assignee(s) and/or transferee(s) of said project. Permittee shall not without prior notification to the Planning and Development Services Department assign, sell, or transfer, or grant control of this Permit or any right or privilege herein. The Permittee shall provide a written notice a minimum of sixty (60) calendar days prior to such proposed transfer becoming effective.

G-7 RIGHT OF ENTRY
The County reserves the right to enter the premises to make the appropriate inspection(s) at any time, announced or unannounced, in order to make appropriate inspection(s) and to determine if the condition(s) of this permit are complied with. Access to authorized enforcement agency personnel shall not be denied.

G-8 TIME LIMIT
Unless otherwise specified within the project specific conditions this project shall be limited to a maximum of (3) three years from the recordation date of the CUP. The CUP may be extended for successive

three (3) years by the Planning Director upon a finding by the Planning & Development Services Department that the project is in full and complete compliance with all conditions of the CUP and any applicable land use regulation(s) of the County of Imperial. Unless specified otherwise herein, no conditional use permit shall be extended for more than four (4) consecutive periods. If an extension is necessary or requested beyond fifteen (15) years, the Permittee shall file a written request with the Planning Director for a hearing before the Planning Commission. Such request shall include the appropriate extension fee. An extension shall not be granted if the project is in violation of any one or all of the conditions or if there is a history of non-compliance with the project conditions.

G-9 DEFINITIONS

In the event of a dispute the meaning(s) or the intent of any word(s), phrase(s), and/or conditions or sections herein shall be determined by the Planning Commission of the County of Imperial. Their determination shall be final unless an appeal is made to the Board of Supervisors within the required time. In this permit, the term Permittee may also apply to any other facility user whether specified by name herein or not. To the extent that this site may be used by more than one service provider other than the applicant (Permittee), all of the conditions of this permit shall be equally applicable to the other "user(s)" as if they were the "Permittee".

G-10 SPECIFICITY

The issuance of this permit does not authorize the Permittee to construct or operate this project in violation of any state, federal, local law nor beyond the specified boundaries of the project as shown on the application/project description, nor shall this permit allow any accessory or ancillary use not specified herein. This permit does not provide any prescriptive right or use to the Permittee for future addition and/or modification to this project. The site specific use authorized by this permit is listed under the SITE SPECIFIC ("S") conditions, and only the use or uses listed shall be deemed as approved by this permit.

G-11 HEALTH HAZARD

If the County Health Officer determines that a significant health hazard exists to the public, the County Health Officer may require appropriate measures and the Permittee shall implement such measures to mitigate the health hazard. If the hazard to the public is determined to be imminent, such measures may be imposed immediately and may include temporary suspension of the subject operations. However, within forty-five (45) days of any such suspension of operations, the measures imposed by the County Health Officer must be submitted to the Planning Commission for review and approval. Nothing shall prohibit Permittee from requesting a special Planning Commission meeting provided Permittee bears all costs.

G-12 REPORT(S)

Permittee shall file an annual report with the Planning and Development Services Department to show that Permittee is in full compliance with this Conditional Use Permit. The report shall be filed at least fifteen (15) days prior to the anniversary (recordation date) of this permit. It shall be the responsibility of the Permittee to provide all reports and to include the information about other users. The County may request information at any time from the Permittee or other users if applicable; however, it shall be the responsibility of the Permittee to assure that the County receives such information in a timely manner.

G-13 RESPONSIBLE AGENT

Permittee shall maintain on file with the Planning and Development Services Department the name and phone number of the responsible agent for the site. A back-up name shall also be provided, and a phone number for twenty-four (24) hour emergency contact shall also be on file. If there are other users, the same information (as applicable) required from the Permittee shall also be made available to the County from such other users.

G-14 INDEMNIFICATION:

Permittee shall defend, indemnify and hold harmless County and its agents, including consultants, officers and employees from any claim, action or proceeding against the County or its agents, including consultants, officers or employees to attack, set aside, void, or annul the approval of this application or adoption of the environmental documents which accompanies it. This indemnification obligation shall include, but not be limited to, damages, costs, expenses, attorneys fees, or expert witness costs that may be asserted by any person or entity, including the Permittee arising out of or in connection with the approval of this application, including any claim for private attorney general fees claimed by or awarded to any party from the County.

G-15 CHANGE OF OWNER/OPERATOR

In the event the ownership of the site or the facilities or the operation of the site transfers from the current Permittee to a new successor Permittee, the successor Permittee shall be bound by all terms and conditions of this permit as if said successor was the original Permittee. Current Permittee shall inform the County Planning and Development Services Department in writing at least sixty (60) calendar days prior to any such transfer. Failure of a notice of change of ownership or change of operator shall be grounds for the immediate revocation of the CUP. In the event of a change, the new Owner/Operator shall file with the

Planning and Development Services Department via Certified Mail, a letter stating that they are fully aware of all conditions and acknowledge that they will adhere to all conditions and/or regulations. If this permit or any subservient or associated permit requires financial surety, the transfer of this permit shall not be effective until the new Permittee has the requisite surety on file. Furthermore, the existing surety shall not be released until a replacement surety is accepted by County Counsel's office.

G-16 MINOR AMENDMENTS

The Planning Director may approve minor changes or administrative extensions, as requested in writing by the Permittee, provided it does not result in additional environmental impacts and/or are generally procedural or technical and/or which may be necessary to comply with other government permit compliance requirements.

G-17 CONDITION PRIORITY

This project shall be constructed and operated as described in the Conditional Use Permit application, the Environmental Assessment, the project description, and as specified in these conditions. Where a conflict occurs, the Conditional Use Permit conditions shall govern and take precedence.

G-18 SEVERABILITY

Should any condition(s) of this permit be determined by a Court or other agency with proper jurisdiction to be invalid for any reason, such determination shall not invalidate the remaining provision(s) of this permit.

G-19 INVALID CONDITIONS/SEVERABILITY:

Should any condition(s) of this permit be determined by a Court or other agency with property jurisdiction to be invalid for any reason, such determination shall not invalidate the remaining provision(s) of this permit.

G-20 REVOCATION:

Upon the determination by the Planning & Development Services Department that the project is or may not be in full compliance with any one or all of the conditions of this Conditional Use Permit, or upon the finding that the project is creating a nuisance as defined by law, the issue shall be brought immediately to the appropriate enforcement agency or to the Planning Commission for hearing to consider appropriate response including but not limited to the revocation of the CUP or to consider possible amendments to the CUP. The hearing shall be held upon due notice having been provided to the Permittee and to the public in accordance with established ordinance/policy.

(TOTAL "G" CONDITIONS are 20)

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PROJECT SPECIFIC CONDITIONS:

S-1 The Conditional Use Permit (CUP) allows the Permittee to draw up to 10.22 acre-feet of groundwater per year for construction purposes. The use of the water well shall be for non-potable use only, i.e. for construction and 1.37 acre-feet per year for operation and maintenance and up to 5 acre-feet for decommissioning of the Wister Solar Energy Facility.

S-2 Water from the well shall not be used, sold, given, exported, or transported from the immediate site area of the Wister Solar Energy Facility.

S-3 A flow meter shall be installed and sealed by a California State Licensed Water Well Drilling Contractor. Registered user shall submit an annual report to the Planning & Development Services Department indicating the yearly amount of water extracted from the well. A photograph (dated and signed) of the flow meter readings shall be included in the annual report. The report shall be received within thirty (30) days following the anniversary date of the issuance of this registration. In the event of a flow meter failure, the registered user shall be required to cease the water well operation and notify the Planning & Development Services Department. The registered user may be allowed to temporarily substitute the flow meter for an alternative measuring device, at the approval of the Planning & Development Services Department. In this case two (2) separate reports shall be submitted as stipulated herein. (Pursuant to Title 9, Division 22: Groundwater Ordinance 92202.04 Extraction Facility Water Flow Measurements)

S-4 This permit does not authorize Permittee to "slant drill" under adjoining property.

S-5 Should the water well be "abandoned" at any time for more than 360 consecutive days, Permittee shall seal/cap the well according to standards set by the State and in a manner acceptable to the County Building Official. (Abandonment shall mean as follows:

ABANDONMENT: A well is deemed "abandoned" when it has not been used for one (1) year. An owner may have the well deemed "inactive" by filling a written notice with the Department stating his/her intentions to use the well under specific conditions and/or time frames. As evidence of his/her intentions, the conditions contained in Bulletin 74-81 (Sec. 21) shall be met. Any well that is open or whose services/operating equipment (e.g. pumps/motors/pipes, etc.) has been removed shall be deemed abandoned.

S-6 The Permittee shall construct the water well as the specific location shown on the site plan. If an alternate location on the property for the water well is desired, Permittee shall submit a revised site plan for review and approval by Environmental Health Services and the Planning & Development Services Department prior to construction of the water well.

S-7 The water well shall be registered with the Planning & Development Services Department to comply with the Imperial County's Groundwater Ordinance (Title 9, Division 22) and Water Well Regulations (Title 9, Division 21). The applicant is required to sign the registration form prior to recordation of the CUP.

S-8 Water Well Replacement: In the event the proposed water well under this CUP requires replacement, and the CUP is still active and in compliance, said replacement water well shall be constructed by a California Licensed Driller in accordance with California Department of Water Resources Bulletin 74-81 and 74-90 (including any subsequent revisions), and with the Imperial County Water Well Ordinance, Section 92101.00 et seq

Permittee shall submit copies of the "Report of Completion" (as required by the California Water Code, Section 13751), by the California Licensed Driller on the construction of any water well replaced. Copies shall be submitted to the Environmental Health Services, Planning & Development Services Department, and Public Works within thirty (30) days of the construction or destruction of the well, this report shall include:

1. A description of the exact location of the well'
2. A detailed log of the well
3. A description of the type and depth of casings
4. Details of perforation
5. The methods used for sealing off surface or contaminated waters.
6. Methods for preventing contaminated waters from one aquifer to mix with another aquifer.
7. Name of person who constructed the well.

S-9 PUBLIC SERVICE:

1. If Permittee receives an exclusion of applicable sales and use tax payable to the County of Imperial under Senate Bill 71 under the State Public Resource Code (Section 26003, et al.) and the California Alternative Energy and Advanced Transportation Financing Authority (CAETFA), Permittee shall pay to the County and Local Transportation

Authority an amount equal to the sales tax (currently at 1.5%) which would have been received if Permittee had not obtained such exclusion.

a) Permittee shall require that its general construction contractor exercise its option to obtain a Board of Equalization (BOE) sub-permit for the jobsite and allocate all eligible use tax payments to Imperial County and LTA. Permittee will require that the general contractor provide County of Imperial with either a copy of their BOE account number and sub-permit. To accomplish this, Permittee shall either cause its general construction contractor to treat the project in accordance with California Regulation 1521(b)(2)(B),California Regulation 1521(c)(13)(B), and California Regulation 1826(b) for sales and use tax purposes or form a "Buying Company" as defined in the State of California Board of Equalization Regulation 1699(h). Permittee can adopt an alternate methodology to accomplish this goal if such methodology is approved by the County Executive Officer prior to issuance of building permits. Permittee shall require its general construction contractor to use commercially reasonable best efforts to cause its subcontractors and vendors to obtain similar sub-permits for the jobsite and to allocate all eligible sales and use tax payment to Imperial County and LTA.

b) Permittee shall direct use taxes on out-of-County taxable purchased construction related items to Imperial County, to the extent permitted and consistent with state use tax law.

c) Permittee shall use its best efforts, consistent with state law, to source taxable purchases from price competition construction retail vendors within the County of Imperial in order to further source sales to County.

d) The Permittee shall exclude from assessment and taxation under California Revenue and Taxation Code Section 73 (AB 1451) only that property qualifying as an Active Solar Energy System, pursuant to the applicable guidelines issued by the Board of Equalization.

2. The Permittee shall widely publicize to County residents the availability of job opportunities associated with the project (whether or not those job opportunities are within Imperial County or are regional). Since the majority of the population residents in the incorporated Cities of the County, dissemination of the information should be relatively easy. Postings at City Halls, newspaper and television advertisements, local job centers, and dedicated website shall offer sufficient avenues of communication. The Imperial County Office of Employment and Training in addition to the Imperial Valley College presents viable sources for community awareness. The information shall provide available positions,

details of positions including qualifications, number of openings, indicated the anticipated start date for each, and application process. In order to maintain oversight of the process, the application process can be completed both on a dedicated website and at dedicated computers at the County which would afford those without Internet connection the ability to apply. The Permittee's information shall be forwarded to the Permittee or their contractor and copies of applications files are maintained at the County.

3. During the development phase of the project, the Permittee shall provide a roster of employees to include their position and place of residence. Permittee shall also attempt to coordinate a ride-share program with Caltrans and other regional employers to facilitate the employment of Imperial County residents in jobs related to this project.

4. Unless prohibited by local, state or federal law or regulation, Permittee shall make good faith efforts to hire qualified residents of the Imperial County with the objective that a majority of the total work force is comprised of the Imperial County residents.

5. The Permittee shall install and implement security measures which may include, but not limited to, secured perimeter fencing with barbed wire, sensors, with controlled access points, security alarms, security camera systems, security guard vehicle patrols to deter trespass or unauthorized activities that would interfere with operation of the proposed project.

6. Permittee shall compensate the County pursuant to the Department of Environmental Health Fee Schedule for any costs of calls related to bees and mosquitoes.

7. The Permittee shall reimburse the Sheriff's Department for any investigations regarding theft on the Project site and related law enforcement.

8. Permittee shall enter into a Public Benefit Agreement with the County of Imperial to provide for a monetary benefit payable to the County to maximize the benefits of the Project to the Imperial County prior to the issuance of the first Building/Grading permit.

9. All construction supervisors and foremen shall be provided with communication devices, cell phones or walkie-talkies, in the event of an emergency situation on-site.

10. For operation and maintenance fees associated with Fire Department/OES:

a. Permittee shall pay a fee of $50 per acre per year prior to commencement of the construction period to address the Imperial County Fire/OES expenses for service calls within the Project's Utility/Transmission area. Said amount shall be prorated on a monthly basis for periods of time less than a full year. Permittee shall provide advance, written notice to County Executive Office of the construction schedule and all revisions thereto.

b. Permittee shall pay an annual fee of $20 per acre per year during the post-construction, operational phase of the Project to address the Imperial County Fire/OES expenses for service calls within the Project's Utility/Transmission area. Said fee will be paid to the Fire Department to cover on-going maintenance and operations costs created by the project.

c. Costs associated with items two above items shall be annually adjusted on January 1st to add a CPI (Los Angeles) increase. Such costs associated with these items can be readjusted in the County's sole discretion if a new service analysis is prepared and that service analysis is approved by both the County and the Permittee.

TOTAL "S" CONDITIONS are 9

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NOW THEREFORE, County hereby issues Conditional Use Permit #20-0006 and Permittee hereby accepts such permit upon the terms and conditions set forth herein.

IN WITNESS THEREOF, the parties hereto have executed this Agreement the day and year first written.

PERMITTEE

By: _____ Dated: _____
Melissa Wendt, Director
Project Development
ORNI 33, LLC

COUNTY OF IMPERIAL, a political Subdivision of the STATE OF CALIFORNIA

By: _____ Dated: _____
James A. Minnick, Director
Planning & Development Services

FOR PERMITTEES NOTARIZATION

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA
COUNTY OF _____} S.S.

On _____ before me, _____, a Notary Public in and for said County and State, personally appeared _____ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal

Signature_____

_____

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document

_____

Number of Pages_____ Date of Document_____
Signer(s) Other Than Named above_____

FOR COUNTY'S NOTARIZATION

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA
COUNTY OF IMPERIAL} S.S.

On _____ before me, _____, a Notary Public in and for said County and State, personally appeared _____ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal

Signature_____

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document

_____

Number of Pages_____ Date of Document_____
Signer(s) Other Than Named above_____

0.4 Mitigation Monitoring and Reporting Program

The County of Imperial will adopt this Mitigation Monitoring and Reporting Program (MMRP) in accordance with Public Resources Code (PRC) Section 21081.6 and Section 15097 of the California Environmental Quality Act (CEQA) Guidelines. The purpose of the MMRP is to ensure that the Wister Solar Energy Facility Project, which is the subject of the Environmental Impact Report (EIR), complies with all applicable environmental mitigation requirements. The mitigation measures for the project will be adopted by the County of Imperial, in conjunction with the certification of the Final EIR. The mitigation measures have been integrated into this MMRP.

The mitigation measures are provided in Table 0.4-1. The specific mitigation measures are identified, as well as the monitoring method, responsible monitoring party, monitoring phase, verification/approval party, date mitigation measure verified or implemented, location of documents (monitoring record), and completion requirement for each mitigation measure.

The mitigation measures applicable to the project include avoiding certain impacts altogether, minimizing impacts by limiting the degree or magnitude of the action and its implementation, and/or reducing or eliminating impacts over time by maintenance operations during the life of the action.

Public Resources Code Section 21081.6 requires the Lead Agency, for each project that is subject to CEQA, to monitor performance of the mitigation measures included in any environmental document to ensure that implementation does, in fact, take place. The County of Imperial is the designated CEQA lead agency for the Mitigation Monitoring and Reporting Program. The County of Imperial is responsible for review of all monitoring reports, enforcement actions, and document disposition as it relates to impacts within the County's jurisdiction. The County of Imperial will rely on information provided by the monitor as accurate and up to date and will field check mitigation measure status as required.

A record of the MMRP will be maintained at County of Imperial, Department of Planning and Development Services, 801 Main Street, El Centro, CA 92243. All mitigation measures contained in the EIR shall be made conditions of the project as may be further described below.

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Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
Air Quality								
AQ-1	**Construction Equipment.** Construction equipment shall be equipped with an engine designation of EPA Tier 2 or better (Tier 2+). A list of the construction equipment, including all off-road equipment utilized at each of the projects by make, model, year, horsepower and expected/actual hours of use, and the associated EPA Tier shall be submitted to the County Planning and Development Services Department and ICAPCD prior to the issuance of a grading permit. The equipment list shall be submitted periodically to ICAPCD to perform a NOx analysis. ICAPCD shall utilize this list to calculate air emissions to verify that equipment use does not exceed significance thresholds. The Planning and Development Services Department and ICAPCD shall verify implementation of this measure.	Prior to the issuance of a grading permit, ICAPCD shall verify that construction equipment are equipped with an engine designation of EPA Tier 2 or better. The equipment list shall be submitted periodically to ICAPCD to perform a NOx analysis.	Department of Planning and Development Services and ICAPCD	Prior to the issuance of a grading permit and during construction	Department of Planning and Development Services and ICAPCD			
AQ-2	**Fugitive Dust Control.** Pursuant to ICAPCD, all construction sites, regardless of size, must comply with the requirements contained within Regulation VIII – Fugitive Dust Control Measures. Whereas these Regulation VIII measures are mandatory and are not considered project environmental mitigation measures, the ICAPCD CEQA Handbook's required additional standard and enhanced mitigation measures listed below shall be implemented prior to and during construction. ICAPCD will verify implementation and compliance with these measures as part of the grading permit review/approval process. ***ICAPCD Standard Measures for Fugitive Dust (PM_{10}) Control*** • All disturbed areas, including bulk material storage, which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material, such as vegetative ground cover. • All on-site and offsite unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.	Prior to and during construction, the ICAPCD will verify that the project is in compliance with Regulation VIII-Fugitive Dust Control Measures.	Department of Planning and Development Services and ICAPCD	Prior to and during construction	Department of Planning and Development Services and ICAPCD			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering. • The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material. • All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area. • Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line. • The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants, and/or watering. ***ICAPCD "Discretionary" Measures for Fugitive Dust (PM_{10}) Control*** • Water exposed soil only in those areas where active grading and vehicle movement occurs with adequate frequency to control dust. • Replace ground cover in disturbed areas as quickly as possible. • Automatic sprinkler system installed on all soil piles.							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• Vehicle speed for all construction vehicles shall not exceed 15 miles per hour on any unpaved surface at the construction site. • Develop a trip reduction plan to achieve a 1.5 average vehicle ridership for construction employees. • Implement a shuttle service to and from retail services and food establishments during lunch hours. ***Standard Mitigation Measures for Construction Combustion Equipment*** • Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum. • Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use. • Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set). ***Enhanced Mitigation Measures for Construction Equipment*** To help provide a greater degree of reduction of PM emissions from construction combustion equipment, ICAPCD recommends the following enhanced measures. • Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways. • Implement activity management (e.g., rescheduling activities to reduce short-term impacts).							
AQ-3	**Dust Suppression.** The project applicant shall employ a method of dust suppression (such as water or chemical stabilization) approved by ICAPCD. The	During construction, the Department of Planning and Development Services shall verify that	Department of Planning and Development Services	During construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	project applicant shall apply chemical stabilization as directed by the product manufacturer to control dust between the panels as approved by ICAPCD, and other non-used areas (exceptions will be the paved entrance and parking area, and Fire Department access/emergency entry/exit points as approved by Fire/ Office of Emergency Services [OES] Department).	the project applicant is employing a method of dust suppression approved by ICAPCD.						
AQ-4	**Dust Suppression Management Plan.** Prior to any earthmoving activity, the applicant shall submit a construction dust control plan and obtain ICAPCD and Development Services Department (ICPDS) approval.	Prior to any earthmoving activity, the ICAPCD and Department of Planning and Development Services shall review and approve a construction Dust Control Plan.	ICAPCD and Department of Planning and Development Services	Prior to construction	Department of Planning and Development Services and ICAPCD			
AQ-5	**Operational Dust Control Plan.** Prior to issuance of a Certificate of Occupancy, the applicant shall submit an operations dust control plan and obtain ICAPCD and ICPDS approval. ICAPCD Rule 301 Operational Fees apply to any project applying for a building permit. At the time that building permits are submitted for the proposed project, the ICAPCD shall review the project to determine if Rule 310 fees are applicable to the project.	Prior to the issuance of a Certificate of Occupancy, the applicant shall submit an operations dust control plan and obtain ICAPCD and ICPDS approval.	Department of Planning and Development Services	Prior to the issuance of a Certificate of Occupancy	Department of Planning and Development Services and ICAPCD			
Biological Resources								
BIO-1	**Pre-Construction Plant Survey.** Prior to initiating ground disturbance, a focused survey for Harwood's milkvetch shall occur during its blooming period. A reference population shall be identified and confirmed to be blooming at the time that surveys are conducted on the project site. Should Harwood's milkvetch be present on site, project design will be evaluated to determine if modifications can be made to avoid at least 90-percent of the observed individuals or compensatory mitigation shall be provided through off-site preservation of an equivalent population.							
BIO-2	**General Impact Avoidance and Minimization Measures.** The following measures will be applicable throughout the life of the project: • To reduce the potential indirect impact on migratory birds, bats and raptors, the project	The measures as provided in Mitigation Measure BIO-2 shall be implemented throughout the life of the project.	Department of Planning and Development Services	Prior to construction, during construction, and post-construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	will comply with the APLIC 2012 Guidelines for overhead utilities, as appropriate, to minimize avian collisions with transmission facilities (APLIC 2012). • All electrical components on the project site shall be either undergrounded or protected so that there will be no exposure to wildlife and therefore no potential for electrocution. • The Project proponent shall designate a Project Biologist who shall be responsible for overseeing compliance with protective measures for the biological resources during vegetation clearing and work activities within and adjacent to areas of native habitat. The Project Biologist will be familiar with the local habitats, plants, and wildlife. The Project Biologist will also maintain communications with the Contractor to ensure that issues relating to biological resources are appropriately and lawfully managed and monitor construction. The Project Biologist will monitor activities within construction areas during critical times, such as vegetation removal, the implementation of Best Management Practices (BMP), and installation of security fencing to protect native species. The Project Biologist will ensure that all wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed. • The boundaries of all areas to be newly disturbed (including solar facility areas, staging areas, access roads, and sites for temporary placement of construction materials and spoils) will be delineated with stakes and flagging prior to disturbance. All disturbances, vehicles, and equipment will be confined to the flagged areas. • No potential wildlife entrapments (e.g., trenches, bores) will be left uncovered overnight. Any uncovered pitfalls will be excavated to 3:1 slopes at the ends to provide wildlife escape ramps. Alternatively, man-made ramps may be installed. Covered							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	pitfalls will be covered completely to prevent access by small mammals or reptiles. • To avoid wildlife entrapment (including birds), all pipes or other construction materials or supplies will be covered or capped in storage or laydown area, and at the end of each work day in construction, quarrying and processing/handling areas. No pipes or tubing of sizes or inside diameters ranging from 1 to 10 inches will be left open either temporarily or permanently. • No anticoagulant rodenticides, such as Warfarin and related compounds (indandiones and hydroxycoumarins), may be used within the project site, on off-site project facilities and activities, or in support of any other project activities. • Avoid wildlife attractants. All trash and food-related waste shall be placed in self-closing containers and removed regularly from the site to prevent overflow. Workers shall not feed wildlife. Water applied to dirt roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards to prevent the formation of puddles, which could attract wildlife. Pooled rainwater or floodwater within retention basins will be removed to avoid attracting wildlife to the active work areas. • To minimize the likelihood for vehicle strikes on wildlife, speed limits will not exceed 15 miles per hour when driving on access roads. All vehicles required for O&M must remain on designated access/maintenance roads. • Avoid night-time construction lighting or if nighttime construction cannot be avoided use shielded directional lighting pointed downward and towards the interior of the project site, thereby avoiding illumination of adjacent natural areas and the night sky. • All construction equipment used for the Project will be equipped with properly operating and maintained mufflers.							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel hand-held equipment, will be stored within secondary containment when within 50 feet of open water to the fullest extent practicable. Secondary containment will consist of a ring of sand bags around each piece of stored equipment/structure. A plastic tarp/visqueen lining with no seams shall be placed under the equipment and over the edges of the sandbags, or a plastic hazardous materials secondary containment unit shall be utilized by the Contractor. • The Contractor will be required to conduct vehicle refueling in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species. Any fuel containers, repair materials, including creosote-treated wood, and/or stockpiled material that is left on site overnight, will be secured in secondary containment within the work area and staging/assembly area and covered with plastic at the end of each work day. • In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor will ensure that all portable fuel containers are removed from the project site. • All equipment will be maintained in accordance with manufacturer's recommendations and requirements. • Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan or equivalent, Materials Safety Data Sheets, and any specifications required by other permits issued for the project. • The Contractor will utilize off-site maintenance and repair shops as much as possible for maintenance and repair of equipment.							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment will be used to capture spills/leaks within all areas. Where feasible, maintenance of equipment will occur in upland areas where fuel cannot enter waters of the U.S. and in areas that do not have potential to support federally threatened or endangered species. • Appropriate BMPs will be used by the Contractor to control erosion and sedimentation and to capture debris and contaminants from bridge construction to prevent their deposition in waterways. No sediment or debris will be allowed to enter the creek or other drainages. All debris from construction of the bridge will be contained so that it does not fall into channel. Appropriate BMPs will be used by the Contractor during construction to limit the spread of resuspended sediment and to contain debris. • Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard. • Firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment. • Cross-country vehicle and equipment use outside of approved designated work areas and access roads shall be prohibited to prevent unnecessary ground and vegetation disturbance. • Any injured or dead wildlife encountered during project-related activities shall be reported to the project biologist, biological monitor, CDFW, or a CDFW-approved veterinary facility as soon as possible to report the observation and determine the best course of action. For special-status species, the Project Biologist shall notify the County,							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	USFWS, and/or CDFW, as appropriate, within 24 hours of the discovery. • Stockpiling of material will be allowed only within established work areas. • Actively manage the spread of noxious weeds (See Mitigation Measure BIO-5) • The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving.							
BIO-3	**Worker Environmental Awareness Program.** Prior to project construction, a Worker Environmental Awareness Program shall be developed and implemented by a qualified biologist, and shall be available in both English and Spanish. Handouts summarizing potential impacts to special-status biological resources and the potential penalties for impacts to these resources shall be provided to all construction personnel. At a minimum, the education program shall including the following: • the purpose for resource protection; • a description of special status species including representative photographs and general ecology; • occurrences of USACE, RWQCB, and CDFW regulated features in the Project study area; • regulatory framework for biological resource protection and consequences if violated; • sensitivity of the species to human activities; • avoidance and minimization measures designed to reduce the impacts to special-status biological resources; • environmentally responsible construction practices; • reporting requirements; • the protocol to resolve conflicts that may arise at any time during the construction process; and • workers sign acknowledgement form indicating that the Environmental Awareness	Prior to construction, the Department of Planning and Development Services shall verify that a Worker Environmental Awareness Program has been implemented by a qualified biologist. The Department of Planning and Development Services shall verify the completion of the Worker Environmental Awareness Program by obtaining signed acknowledgements forms from workers.	Department of Planning and Development Services	Prior to construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Training and Education Program that has been completed and would be kept on record.							
BIO-4	**Desert Tortoise Avoidance and Minimization.** A qualified biologist shall conduct focused presence/absence surveys for Desert Tortoise for 100-percent of the project footprint pursuant to the October 19, 2019 Version of the USFWS Desert Tortoise Survey Protocol. If no live desert tortoise or sign of active desert tortoise are detected, no further avoidance and minimization is required. If live desert tortoise or sign of active desert tortoise are detected, the project proponent shall initiate consultation with USFWS and CDFW to obtain the necessary federal and state ESA authorizations and the following avoidance, minimization and compensatory mitigation measures will be implemented: • Permanent tortoise-proof fencing shall be along the perimeter of the project site. Fencing shall be installed, inspected, and maintained according to specifications in the current USFWS *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)*. An authorized desert tortoise biologist shall conduct pre-construction clearance surveys for the project site no more than 14-days prior to the initiation of fence installation. All potentially active burrows shall be identified for hand excavation. Pre-construction clearance surveys shall be repeated within the fenced impact area after fence installation is complete. If desert tortoise are observed they shall be relocated from within the work area to outside the fenced area by a permitted biologist. • The authorized biologist shall conduct desert tortoise pre-construction clearance surveys along all existing and new dirt access road alignments, and the Gen-tie alignment before any ground disturbing activities are initiated and prior to the start of construction activities each day during ground-disturbing activities and weekly thereafter. Relocate desert tortoises as necessary. Any handling of special-status species must be approved by the appropriate Federal and State agencies	Prior to construction, the Department of Planning and Development Services shall verify that focused presence/absence surveys for Desert Tortoise were conducted by a qualified biologist. If live desert tortoise or sign of active desert tortoise is detected, the measures as listed in Mitigation Measure BIO-4 shall be implemented.	Department of Planning and Development Services	Prior to construction, during construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	and be done in accordance with species-specific handling protocols. • Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of the authorized biologists with demonstrated prior experience with this species. • Inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat, before the materials are moved, buried, or capped. • Incorporate Raven Management into the Pest Control Plan (See BIO-5). • Inspect the ground under vehicles and equipment for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, an authorized biologist or biological monitor under the direction of the authorized biologist may remove and relocate the animal to a safe location. • All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages. If possible, pipes and culverts greater than 3 inches in diameter would be stored on dunnage to prevent wildlife from taking refuge in them, to the extent feasible. • To fully mitigate for habitat loss and potential take of the Mojave desert tortoise, the Applicant will provide compensatory mitigation at a ratio of 1:1 For the purposes of this measure, the project site (i.e., footprint) means all Project areas with new direct ground disturbance during construction and operation of the Project. This includes all lands directly disturbed that will no longer provide viable							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	long-term habitat for the Mojave desert tortoise, such as the solar field, substation and new access roads. Areas within the gen-tie line corridor where no ground disturbance will occur are not included in the area to be mitigated through compensation. Compensatory mitigation could include agency-approved payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on preservation lands; or a combination of the three.							
BIO-5	**Prepare and Implement an Operation and Maintenance Worker Education Plan.** An Operation and Maintenance Worker Education Plan shall be prepared to advise personnel on general operations measures. The Worker Education Plan shall be submitted to the County of Imperial Planning and Development Services Department for review and approval prior to issuance of building permits. The following provisions shall be included in the Worker Education Plan and implemented throughout the operational lifespan of the Project: Operation and maintenance personnel shall be prohibited from: • Exceeding nighttime and daytime vehicle speeds of 10 miles per hour and 25 miles per hour, respectively, within the facility, on access roads and within the Gen-Tie line corridor. Speed limit signs shall be posted throughout the project site to remind workers of travel speed restrictions. • Harming, harassing, or feeding wildlife and/or collecting special-status plant or wildlife species. • Disturbing active avian nests • Traveling (either on foot or in a vehicle) outside of the Project footprint except on public roads. • Littering on the Project area. • Allowing persons not employed at the facility to remain on site after daylight hours. • Exceeding normal nighttime operational noise or lighting levels	Prior to issuance of building permits, the Department of Planning and Development Services shall review and approve the Operation and Maintenance Worker Education Plan.	Department of Planning and Development Services	Prior to issuance of building permits	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Bringing domestic pets and firearms to the site. The Operation and Maintenance Worker Education Plan shall require that: • All operation and maintenance vehicles and equipment park in approved designated areas only. • The project site and Gen-Tie line corridor be kept clear of trash and other litter to reduce the attraction of opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species. • Operation and maintenance employees maintain Hazardous Materials Spill Kits on-site. All operation and maintenance staff shall be trained in how to use Hazardous Materials Spill Kits in the event of a spill. • An approved Long-Term Maintenance Plan for the retention/detention basins be developed and implemented. • Weed and Raven management shall be addressed in a project-specific pest management plan (See BIO-5) • Maintain shielding on external lighting to direct down and towards the project site and away from adjacent undeveloped land. • Workers sign acknowledgement form indicating that the Environmental Awareness Training and Education Program that has been completed and would be kept on record • desert tortoise avoidance and minimization measures be implemented if desert tortoise is detected during pre-construction surveys • The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving. • Personnel are trained to avoid causing wildfires and manage them safely and promptly if necessary							
BIO-6	**Burrowing Owl Avoidance and Minimization.** Take Avoidance (pre-construction) surveys for burrowing owl shall be completed prior to project construction.	Prior to construction, the Department of Planning and Development Services shall verify that	Department of Planning and Development Services	Prior to construction, during construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Surveys shall be conducted as detailed within Appendix D of the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game [CDFG] 2012). If burrowing owl is not detected, construction may proceed. • If burrowing owl is identified during the non-breeding season (September 1 through January 31), then a 50 meter buffer will be established by the biological monitor. Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until a CDFW-approved exclusion plan has been implemented. The buffer distance may be reduced if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities. • If burrowing owl is identified during the breeding season (February 1 through August 31), then an appropriate buffer will be established by the biological monitor in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Construction within the buffer will be avoided until a qualified biologist determines that burrowing owl is no longer present or until young have fledged. The buffer distance may be reduced in consultation with CDFW if noise attenuation buffers such as hay bales are placed between the occupied burrow and construction activities.	pre-construction surveys for burrowing owl were conducted. If burrowing owl are present, the measures as listed in Mitigation Measure BIO-6 shall be implemented.						
BIO-7	**Pre-Construction Nesting Bird Surveys.** To the extent possible, construction shall occur outside the typical avian breeding season (February 15 through September 15). If construction must occur during the general avian breeding season, a pre-construction nest survey shall be conducted within the impact area and a 500-foot (150-meter) buffer by qualified biologist no more than 7 days prior to the start of vegetation clearing and/or ground disturbing construction activities in any given area of the Project footprint. Construction crews shall coordinate with the qualified biologist at least 7 days prior to the start of construction in a given area to ensure that the construction area has been adequately surveyed. A nest is defined as active once birds begin constructing or repairing the nest in readiness for egg-laying. A	Prior to construction, the Department of Planning and Development Services shall verify that a pre-construction nesting survey was conducted. If nesting birds are present, the measures as listed in Mitigation Measure BIO-7 shall be implemented.	Department of Planning and Development Services	Prior to construction, during construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	nest is no longer an "active nest" if abandoned by the adult birds or once nestlings or fledglings are no longer dependent on the nest. If no active nests are discovered, construction may proceed. If active nests are observed that could be disturbed by construction activities, these nests and an appropriately sized buffer (typically a 200-foot (61-meter) buffer for non-raptor species nests and at least a 500-foot (150-meter) buffer for raptor or federally listed species nests) would be avoided until the young have fledged. Final construction buffers or setback distances shall be determined by the qualified biologist in coordination with USFWS and CDFW on a case-by-case basis, depending on the species, season in which disturbance shall occur, the type of disturbance, and other factors that could influence susceptibility to disturbance (e.g., topography, vegetation, existing disturbance levels, etc.). Active nests shall be avoided until the young have fledged and/or the monitor determines that no impacts are anticipated to the nesting birds or their young. If vegetation clearing and/or ground disturbing activities cease for 14 or more consecutive days during the nesting season in areas where suitable nesting habitat remains, repeat nesting bird surveys shall be required to ensure new nesting locations have not been established within the impact area and the defined buffers.							
BIO-8	**Develop a Bird and Bat Conservation Strategy (BBCS).** A BBCS shall be developed by the Project Applicant in coordination with the County of Imperial, USFWS, and CDFW. The BBCS will include the following components: • A description and assessment of the existing habitat and avian and bat species; • An avian and bat risk assessment and specific measures to avoid, minimize, reduce, or eliminate avian and bat injury or mortality during all phases of the project. • A post-construction monitoring plan that will be implemented to assess impacts on avian and bat species resulting from the Project. • The post-construction monitoring plan will include a description of standardized carcass searches, scavenger rate (i.e., carcass	Prior to construction, the Department of Planning and Development Services shall verify that a Bird and Bat Conservation Strategy has been developed by the project applicant in coordination with the County of Imperial, USFWS, and CDFW.	Department of Planning and Development Services	Prior to construction, during construction, post-construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	removal) trials, searcher efficiency trials, and reporting. Statistical methods will be used to estimate Project avian and bat fatalities if sufficient data is collected to support statistical analysis. • An injured bird response plan that delineates care and curation of any and all injured birds. • A nesting bird management strategy to outline actions to be taken for avian nests detected within the impact footprint during operation of the Project. • A conceptual adaptive management and decision-making framework for reviewing, characterizing, and responding to monitoring results. • Monitoring studies following commencement of commercial operation of each CUP area. Monitoring results will be reviewed annually by the Applicant and the County of Imperial, in consultation with CDFW and USFWS, to inform adaptive management responses. During Project construction, incidental avian carcasses or injured birds found during construction shall be documented. Should a carcass be found by Project personnel, the carcass shall be photographed, the location shall be marked, the carcass shall not be moved, and a qualified biologist shall be contacted to examine the carcass. When a carcass is detected, the following data shall be recorded (to the extent possible): observer, date/time, species or most precise species group possible, sex, age, estimated time since death, potential cause of death or other pertinent information, distance and bearing to nearest structure (if any) that may have been associated with the mortality, location (recorded with Global Positioning System), and condition of carcass. • If any federal listed, state listed or fully protected avian carcasses or injured birds are found during construction or post-construction monitoring, the Project Applicant shall notify USFWS and CDFW within 24 hours via email or phone and work with the resource agencies							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	to determine the appropriate course of action for these species. For such listed species, the CUP owner shall obtain or retain a biologist with the appropriate USFWS Special Purpose Utility Permit(s) and CDFW Scientific Collecting Permit(s) to collect and salvage all dead and injured birds, and store/curate them in freezers for later disposition and analysis.							
BIO-9	**Pre-Construction Surveys for American Badger.** Preconstruction surveys shall be conducted by a qualified biologist for the presence of American badger dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for American badger, which include desert scrub habitats. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the project site disturbed. If potential dens are observed and avoidance is feasible, the following buffer distances shall be established prior to construction activities: • American badger potential den: 30 feet. • American badger active den: 100 feet. • American badger natal den: 500 feet. • If avoidance of the potential dens is not possible, the following measures are required to avoid potential adverse effects to the American badger • Outside the reproductive season defined as February 1 through September 30 for American badger if the qualified Lead Biologist determines through camera monitoring for three consecutive days that potential dens are inactive, the biologist shall excavate these dens by hands with a shovel to prevent American badgers from re-using them during construction. • Outside of the reproductive season defined as February 1 through September 30 for American badger if the Lead Biologist determines that potential dens may be active, an onsite passive relocation program shall be implemented. This program shall consist of excluding American badgers from occupied	The Department of Planning and Development Services shall verify that pre-construction surveys for American badger dens were conducted within 14 days prior to commencement of construction activities. If American badger dens are present, the measures as listed in Mitigation Measure BIO-9 shall be implemented.	Department of Planning and Development Services	Prior to construction, during construction	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for seven days to confirm usage has discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that American badgers have stopped using the dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent use during construction.							
BIO-10	**Compensatory Mitigation for Riparian Woodland and Ephemeral Wash.** Following the completion of project construction, Palo Verde- Ironwood Woodland will be created, enhanced and or conserved within the undeveloped portions of the project site at a ratio of 3:1 (i.e., 3 acres created or enhanced for each acre impacted) by permanent or temporary project activities). Permanent impacts to jurisdictional waters and wetlands shall be mitigated at a minimum 1:1 ratio either through on-site and/or off-site re-establishment, enhancement and conservation of jurisdictional waters or through an approved-mitigation bank or in lieu fee program, if one is available. The type of mitigation, mitigation location and the final mitigation ratios will be established during the permit process for the Project's USACE Section 404 permit, the RWQCB Section 401 Water Quality Certification, and a CDFW Streambed Alteration Agreement, as applicable.	Within 1 year of project construction, the Department of Planning and Development Services shall confirm that Palo Verde- Ironwood Woodland has been created, enhanced, and/or conserved within the undeveloped portions of the project site at a ratio of 3:1. The Department of Planning and Development Services shall confirm that impacts to jurisdictional waters and wetlands were mitigated at a minimum 1:1 ratio either through on-site and/or off-site re-establishment, enhancement and conservation of jurisdictional waters or through an approved-mitigation bank or in lieu fee program.	Department of Planning and Development Services	Post construction	Department of Planning and Development Services			
BIO-11	**Develop and Implement a Pest Management Plan.** The Project shall develop and implement a Pest Management Plan that will reduce negative impacts to surrounding (not necessarily adjacent) farmland during construction, operation and reclamation. The Plan shall include: • Methods for Preventing the Introduction and Spread of pests, including weeds. • Monitoring methods for all agricultural pests and weeds with potential to adversely impact adjacent native habitat (Species on California	The Department of Planning and Development Services shall verify that a Pest Management Plan has been reviewed and approved by the Imperial County Agricultural Commissioner.	Department of Planning and Development Services and Imperial County Agricultural Commissioner	Prior to construction, during construction	Department of Planning and Development Services and Imperial County Agricultural Commissioner			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Invasive Plants Council Inventory rated as Moderately to Highly Invasive) to including insects, vertebrates, weeds, and pathogens. • Eradication and Control Methods All treatments must be performed by a qualified applicator or a licensed pest control business. o "Control" means to reduce the population of common pests below economically damaging levels, and includes attempts to exclude pests before infestation, and effective control methods after infestation. o Effective control methods may include physical/mechanical removal, biocontrol, cultural control, or chemical treatments. o Use of "permanent" soil sterilants to control weeds or other pests is prohibited due to the fact that this would interfere with reclamation. • Notification Requirements: o Notify the Agricultural Commissioner's office immediately regarding any suspected exotic/invasive pest species as defined by the California Department of Food Agriculture (CDFA) and the USDA. o Request a sample be taken by the Agricultural Commissioner's Office of a suspected invasive species. • Eradication of exotic pests will be done under the direction of the Agricultural Commissioner's Office and/or CDFA. • Obey all pesticide use laws, regulations, and permit conditions. • Allow access by Agricultural Commissioner staff for routine visual and trap pest surveys, compliance inspections, eradication of exotic pests, and other official duties. • Ensure that all project employees that handle pest control issues are appropriately trained and certified, that all required records are maintained and available for inspection, and that all permits and other required legal documents are current.							

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• Maintain records of pests found and treatments or pest management methods used. Records should include the date, location/block, project name (current and previous if changed), and methods used. For pesticides include the chemical(s) used, EPA Registration numbers, application rates, etc. A pesticide use report may be used for this. • Reporting Methods • Submit a report of monitoring, pest finds, and treatments, or other pest management methods to the Agricultural Commissioner quarterly within 15 days after the end of the previous quarter, and upon request. • The report is required even if no pests were found or treatment occurred. It may consist of a copy of all records for the previous quarter, or may be a summary letter/report as long as the original detailed records are available upon request.							
Cultural Resources								
CR-1	Pursuant to CEQA Guidelines §15064.5(f), in the event that previously unidentified unique archaeological resources are encountered during construction or operational repairs, archaeological monitors will be authorized to temporarily divert construction work within 100 feet of the area of discovery until significance and the appropriate mitigation measures are determined by a qualified archaeologist familiar with the resources of the region. Applicant shall notify the County within 24 hours. Applicant shall provide contingency funding sufficient to allow for implementation of avoidance measures or appropriate mitigation.	The applicant shall notify the County within 24 hours if unidentified unique archaeological resources are encountered. The County shall verify that the applicant has provided contingency funding sufficient to allow for implementation of avoidance measures or appropriate mitigation.	Department of Planning and Development Services	During grading and construction	Department of Planning and Development Services			
CR-2	In the event of the discovery of previously unidentified archaeological materials, the contractor shall immediately cease all work activities within approximately 100 feet of the discovery. After cessation of excavation, the contractor shall immediately contact the Imperial County Department of Planning and Development Services. Except in the case of cultural items that fall within the scope of the Native American Grave Protection and Repatriation	The applicant shall notify the County immediately if unknown archaeological resources are encountered. The applicant shall retain the services of a qualified professional archaeologist	Department of Planning and Development Services	During grading	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Act, the discovery of any cultural resource within the project area shall not be grounds for a "stop work" notice or otherwise interfere with the project's continuation except as set forth in this paragraph. In the event of an unanticipated discovery of archaeological materials during construction, the applicant shall retain the services of a qualified professional archaeologist, meeting the Secretary of the Interior's Standards for a Qualified Archaeologist, to evaluate the significance of the materials prior to resuming any construction-related activities in the vicinity of the find. If the qualified archaeologist determines that the discovery constitutes a significant resource under CEQA and it cannot be avoided, the applicant shall implement an archaeological data recovery program.	in the event of an unanticipated discovery.						
CR-3	In the event that evidence of human remains is discovered, construction activities within 200 feet of the discovery will be halted or diverted and the Imperial County Coroner will be notified (Section 7050.5 of the HSC). If the Coroner determines that the remains are Native American, the Coroner will notify the NAHC, which will designate a MLD for the project (Section 5097.98 of the PRC). The designated MLD then has 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains (AB 2641). If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a document with the county in which the property is located (AB 2641).	During construction and operational repair period, discovery of human remains shall result in workstoppage in that area until the coroner and the Native American Heritage Commission are contacted.	Department of Planning and Development Services	During construction and operations	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
Geology and Soils								
GEO-1	**Prepare Geotechnical Report(s) as Part of Final Engineering for the Project and Implement Required Measures.** Facility design for all project components shall comply with the site-specific design recommendations as provided by a licensed geotechnical or civil engineer to be retained by the project applicant. The final geotechnical and/or civil engineering report shall address and make recommendations on the following: • Site preparation • Soil bearing capacity • Appropriate sources and types of fill • Potential need for soil amendments • Structural foundations • Grading practices • Soil corrosion of concrete and steel • Erosion/winterization • Seismic ground shaking • Liquefaction • Expansive/unstable soils In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include subsurface testing of soil and groundwater conditions, and shall determine appropriate foundation designs that are consistent with the version of the CBC that is applicable at the time building and grading permits are applied for. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicant. The final geotechnical and/or civil engineering report shall be submitted to Imperial County Public Works Department, Engineering Division for review and approval prior to issuance of building permits.	Prior to the issuance of a grading permit, the Imperial County Public Works Department, Engineering Division shall review and approve a Final Geotechnical Report and/or Civil Engineering Report.	Department of Planning and Development Services and Imperial County Public Works Department, Engineering Division	Prior to issuance of a grading permit	Department of Planning and Development Services and Imperial County Public Works Department, Engineering Division			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
GEO-2	In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the project site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.	The applicant shall retain the services of a qualified paleontological monitor in the event of an unanticipated discovery. The paleontological monitor shall be on-site in accordance with this measure to implement this measure. A monitoring report shall be prepared and submitted to the Department of Planning and Development Services for review and approval.	Department of Planning and Development Services	During grading	Department of Planning and Development Services			
Hydrology/Water Quality								
HYD-1	**Prepare SWPPP and Implement BMPs Prior to Construction and Site Restoration.** The project applicant or its contractor shall prepare a SWPPP specific to the project and be responsible for securing coverage under SWRCB's NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ). The SWPPP shall identify specific actions and BMPs relating to the prevention of stormwater pollution from project-related construction sources by identifying a practical sequence for site restoration, BMP implementation, contingency measures, responsible parties, and agency contacts. The SWPPP shall reflect localized surface hydrological conditions and shall be reviewed and approved by the appropriate agency prior to commencement of work and shall be made conditions of the contract with the contractor selected to build and decommission the project. The SWPPP shall incorporate control measures in the following categories: • Soil stabilization and erosion control practices (e.g., hydroseeding, erosion control blankets, mulching)	Prior to construction and site restoration, the project applicant or its contractor shall prepare a SWPPP with incorporated control measures outlined in Mitigation Measure HYD-1; and implement BMPs. Department of Planning and Development Services to confirm.	Department of Planning and Development Services	Prior to issuance of a grading permit and site restoration	Department of Planning and Development Services			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	• Sediment control practices (e.g., temporary sediment basins, fiber rolls) • Temporary and post-construction on- and off-site runoff controls • Special considerations and BMPs for water crossings and drainages • Monitoring protocols for discharge(s) and receiving waters, with emphasis place on the following water quality objectives: dissolved oxygen, floating material, oil and grease, potential of hydrogen (pH), and turbidity • Waste management, handling, and disposal control practices • Corrective action and spill contingency measures • Agency and responsible party contact information • Training procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP The SWPPP shall be prepared by a Qualified SWPPP Practitioner and/or Qualified SWPPP Developer with BMPs selected to achieve maximum pollutant removal and that represent the best available technology that is economically achievable. Emphasis for BMPs shall be placed on controlling discharges of oxygen-depleting substances, floating material, oil and grease, acidic or caustic substances or compounds, and turbidity. BMPs for soil stabilization and erosion control practices and sediment control practices will also be required. Performance and effectiveness of these BMPs shall be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (inadvertent petroleum release) is required to determine adequacy of the measure.							
HYD-2	**Incorporate Post-Construction Runoff BMPs into Project Drainage Plan.** The project Drainage Plan shall adhere to the County's Engineering Guidelines	Post construction for the project site, the Applicant shall implement a	Department of Planning and Development Services	Post construction	Department of Planning and Development Services and ID			

Table 0.4-1. Mitigation Measures

MM No.	Mitigation Measure	Monitoring Method	Responsible Monitoring Party	Monitoring Phase	Verification/Approval Party	Date Mitigation Measure Verified or Implemented	Location of Documents (Monitoring Record)	Completion Requirement
	Manual, IID "Draft" Hydrology Manual, or other recognized source with approval by the County Engineer to control and manage the on- and off-site discharge of stormwater to existing drainage systems. Infiltration basins will be integrated into the Drainage Plan to the maximum extent practical. The Drainage Plan shall provide both short- and long-term drainage solutions to ensure the proper sequencing of drainage facilities and management of runoff generated from project impervious surfaces as necessary.	Drainage Plan in accordance with the County and Imperial Irrigation District guidelines as outlined in Mitigation Measure HYD-3, Department of Planning and Development Services and Imperial Irrigation District to confirm.						

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