Draft Environmental Impact Report

Brawley Solar Energy Facility Project

SCH No. 2021070424

Imperial County, California

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Prepared for

County of Imperial

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Acronyms

AAM	Annual Arithmetic Mean
AB	Assembly Bill
AC	alternating current
ADT	average daily traffic
AF	acre feet
AFY	acre feet per year
ALUCP	Airport Land Use Compatibility Plan
APEHA	Alquist-Priolo Special Studies Earthquake Hazards Act
APLIC	Avian Powerline Interaction Committee
APM	Applicant Proposed Measure
APN	Assessor's Parcel Numbers
AQAP	air quality attainment plan
AQMP	air quality management plan
ATCM	airborne toxics control measure
BESS	battery storage system
BMP	Best Management Practices
BMS	Battery Management System
B.P.	before present
BUOW	burrowing owl
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFÉ	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
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 Geologic Survey
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CUP	conditional use permit
CRHR	California Register of Historical Resources
CRIT	Colorado River Indian Tribes
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DC	direct current
DDT	dichlorodiphenyltrichloroethane
DOC	Department of Conservation
DOT	Department of Transportation
DPM	diesel particulate matter
EIR	environmental impact report
EO	Executive Order
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FACW	facultative wetland

FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FGC	California Fish and Game Code
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
GHG	Greenhouse gas
HAP	Hazardous Air Pollutant
HCP	Habitat Conservation Plan
HFC	Hydrofluorocarbons
HMMP	hazardous material management program
HRA	health risk assessment
HU	hydrologic unit
HUC	hydrologic unit code
HSC	California Health and Safety Code
HVAC	heating, ventilation, and air conditioning
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
IID	Imperial Irrigation District
IPCC	International Panel on Climate Change
IRWMP	Imperial Integrated Regional Water Management Plan
IS	Initial Study
IVAG	Imperial Valley Association of Governments
IVT	Imperial Valley Transit
IWSP	Interim Water Supply Policy
KOP	key observation points
kV	kilovolt
KVA	kilo volt amperes
LCFS	low carbon fuel standard
LOS	level of service
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
MEER	Mechanical and Electrical Equipment Room
MLD	most likely descendant
MMTCO$_2$e	million metric tons of CO_2 equivalent
MPO	metropolitan planning organization
MW	megawatt
N_2O	nitrous oxides
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NEHRP	National Earthquake Hazards Reduction Program
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NO_X	nitrogen dioxide
NOP	notice of preparation
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O_3	ozone

OES	Office of Emergency Services
OHP	California Office of Historic Preservation
OHWM	ordinary high water mark
O&M	operations and maintenance
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyls
PCE	passenger-car-equivalent
PCS	Power Conversion Station
PFC	Perfluorocarbons
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PPA	power purchase agreement
PPM	parts per million
PRC	Public Resources Code
PV	photovoltaic
RE	Renewal Energy
REG	Renewable Energy/Geothermal
ROG	reactive organic gases
ROW	right-of-way
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
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
SCE	Southern California Edison
SCIC	South Coastal Information Center
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SO_2	sulfur dioxide
SR	State Route
SSAB	Salton Sea Air Basin
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TMDL	total maximum daily load
U.S.	United States
USACE	United States Army Corps of Engineers
UL	Underwriters Laboratory
USC	United States Code
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compounds
VMT	vehicle miles traveled
WEAP	Worker Environmental Awareness Program
WPLT	Western Pluvial Lakes Tradition
WSA	water supply assessment

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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 Brawley Solar Energy Facility Project (i.e., "project" or "proposed project") and to propose mitigation measures, where required, to reduce significant impacts.

Project Overview

The project is located on five parcels, with Assessor Parcel Numbers 037-140-006, -020, -021, -022, and -023. 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) battery energy storage system; and, 3) gen-tie line that would connect the proposed on-site substation to the point of interconnection at the Imperial Irrigation District's (IID) existing North Brawley Geothermal Power Plant substation.

The proposed project involves the construction and operation of a 40 megawatt (MW) photovoltaic (PV) solar energy facility on approximately 227 acres of privately-owned land in unincorporated Imperial County. The proposed project would be comprised of bifacial solar PV arrays panels, an on-site, 92/12 kilovolt (kV) substation, 40 MW battery storage system (BESS), generation tie-line (gen-tie), fiberoptic line and microwave tower, inverters, transformers, underground electrical cables, and access roads.

The onsite substation control room would house the Supervisory Control and Data Acquisition (SCADA) system, switchgear, breakers, and direct current (DC) batteries. Additionally, a 20kV emergency backup generator would be located adjacent to this control room for the HVAC system. The proposed substation site would be located at the southern edge of the project site, adjacent to the BESS. The proposed project would connect to a switchyard located at the southern edge of the project site and then routed through the BESS for energy storage. The power produced by the proposed project would then be transferred via a 1.8-mile-long double circuit 13.8 and 92 kV gen-tie line with 66-foot-high poles to interconnect to the IID' existing North Brawley Geothermal Power Plant substation, located at Hovley Road and Andre Road, southwest of the project site. The transmission line would span the New River. A 12-inch diameter conduit railroad undercrossing would connect the PV arrays from the western side of the railroad tracks to the inverters on the eastern side.

The project applicant intends to secure a Power Purchase Agreement with utility service provider(s) for the sale of power from the project.

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

The Initial Study (IS)/NOP completed by the County (Appendix A of this EIR) determined that environmental effects to Forestry Resources, Energy, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, 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 discussed in Chapter 6.0, Effects Found Not Significant.

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
- Agriculture Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- GHG Emissions
- Hazards and Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning
- Public Services (Fire Protection and Police Protection)
- Transportation
- Tribal Cultural Resources
- Utilities/Service Systems (Water Supply)

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 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 potential impacts related to the conversion of farmland to non-agricultural uses, damage to crops, wildlife, water supply, fire hazards associated with the battery energy storage system, health effects from air pollution, noise and hazardous materials, and change of visual character.

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
Agricultural Resources				
Impact 3.3-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance	Potentially Significant	**AG-1a**	**Payment of Agricultural and Other Benefit Fees.** One of the following options included below is to be implemented prior to the issuance of a grading permit or building permit for the project: **Mitigation for Non-Prime Farmland** **Option 1:** *Provide Agricultural Conservation Easement(s).* The Permittee shall procure Agricultural Conservation Easements on a "1 on 1" basis on land of equal size, of equal quality farmland, outside the path of development. The conservation easement shall meet DOC regulations and shall be recorded prior to issuance of any grading or building permits; or **Option 2:** *Pay Agricultural In-Lieu Mitigation Fee.* The Permittee shall pay an "Agricultural In-Lieu Mitigation Fee" in the amount of 20 percent of the fair market value per acre for the total acres of the proposed site based on five comparable sales of land used for agricultural purposes as of the effective date of the permit, including program costs on a cost recovery/time and material basis. The Agricultural In-Lieu Mitigation Fee, will be placed in a trust account administered by the Imperial County Agricultural Commissioner's office and will be used for such purposes as the acquisition, stewardship, preservation and enhancement of agricultural lands within Imperial County; or, **Option 3:** *Public Benefit Agreement.* The Permittee and County voluntarily enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that is 1) consistent with Board Resolution 2012 005; 2) the Agricultural Benefit Fee must be held by the County in a restricted account to be used by the County only for such purposes as the stewardship, preservation and enhancement of agricultural lands within Imperial County	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
		and to implement the goals and objectives of the Agricultural Benefit program, as specified in the Development Agreement, including addressing the mitigation of agricultural job loss on the local economy. **Mitigation for Prime Farmland** **Option 1:** *Provide Agricultural Conservation Easement(s).* The Permittee shall procure Agricultural Conservation Easements on a "2 on 1" basis on land of equal size, of equal quality farmland, outside the path of development. The conservation easement shall meet DOC regulations and shall be recorded prior to issuance of any grading or building permits; or **Option 2:** *Pay Agricultural In-Lieu Mitigation Fee.* The Permittee shall pay an "Agricultural In-Lieu Mitigation Fee" in the amount of 30 percent of the fair market value per acre for the total acres of the proposed site based on five comparable sales of land used for agricultural purposes as of the effective date of the permit, including program costs on a cost recovery/time and material basis. The Agricultural In-Lieu Mitigation Fee, will be placed in a trust account administered by the Imperial County Agricultural Commissioner's office and will be used for such purposes as the acquisition, stewardship, preservation and enhancement of agricultural lands within Imperial County; or, **Option 3:** *Public Benefit Agreement.* The Permittee and County voluntarily enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that is 1) consistent with Board Resolution 2012 005; 2) the Agricultural Benefit Fee must be held by the County in a restricted account to be used by the County only for such purposes as the stewardship, preservation and enhancement of agricultural lands within Imperial County and to implement the goals and objectives of the Agricultural Benefit program, as specified in the Development Agreement,	

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Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		including addressing the mitigation of agricultural job loss on the local economy; the Project and other recipients of the Project's Agricultural Benefit Fee funds; or emphasis on creation of jobs in the agricultural sector of the local economy for the purpose of off-setting jobs displaced by this Project. **Option 4:** *Avoid Prime Farmland.* The Permittee must revise their CUP Application/Site Plan to avoid Prime Farmland. **AG-1b** **Site Reclamation Plan.** The DOC has clarified the goal of a reclamation and decommissioning plan: the land must be restored to land which can be farmed. In addition to Mitigation Measure AG-1a for Prime Farmland and Non-Prime Farmland, the Applicant shall submit to Imperial County, a Reclamation Plan prior to issuance of a grading permit. The Reclamation Plan shall document the procedures by which the project site will be returned to its current agricultural condition. Permittee shall also provide financial assurance/bonding in the amount equal to a cost estimate prepared by a California licensed general contractor or civil engineer for implementation of the Reclamation Plan in the even Permittee fails to perform the Reclamation Plan.	
Impact 3.3-3: Conversion of Farmland, to non-agricultural use	Potentially Significant	Implement Mitigation Measure AG-1b. **AG-2** **Pest Management Plan.** Prior to the issuance of a grading permit or building permit (whichever occurs first), a Pest Management Plan shall be developed by the project applicant and approved by the County of Imperial Agricultural Commissioner. The project applicant shall maintain a Pest Management Plan until reclamation is complete. The plan shall provide the following: 1. Monitoring, preventative, and management strategies for weed and pest control during construction activities at any portion of the project (e.g., transmission line);	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
		2. Control and management of weeds and pests in areas temporarily disturbed during construction where native seed will aid in site revegetation as follows: • 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 is recommended. All treatments must be performed by a qualified applicator or a licensed pest control business; • All treatments must be performed by a qualified applicator or a licensed pest control operator; • "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, bio control, cultural control, or chemical treatments; • Use of "permanent" soil sterilants to control weeds or other pests is prohibited because this would interfere with reclamation;	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• Notify the Agricultural Commissioner's office immediately regarding any suspected exotic/invasive pest species as defined by the California Department of Food Agriculture and the U.S. Department of Agriculture. Request a sample be taken by the Agricultural Commissioner's Office of a suspected invasive species. Eradication of exotic pests shall be done under the direction of the Agricultural Commissioner's Office and/or California Department of Food and Agriculture; • 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 all project employees that handle pest control issues are appropriately trained and certified, all required records are maintained and made available for inspection, and all required 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;	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• 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. 3. A long-term strategy for weed and pest control and management during the operation of the proposed projects. Such strategies may include, but are not limited to: • Use of specific types of herbicides and pesticides on a scheduled basis. 4. Maintenance and management of project site conditions to reduce the potential for a significant increase in pest-related nuisance conditions on surrounding agricultural lands. 5. The project shall reimburse the Agricultural Commissioner's office for the actual cost of investigations, inspections, or other required non-routine responses to the site that are not funded by other sources.	
Air Quality			
Impact 3.4-1: Conflict with or obstruct implementation of the applicable air quality plan	Less than Significant	**Applicant Proposed Measure (APM) AQ-1 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	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
		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	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		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. **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.	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use. • When commercially available, replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set). **APM AQ-2** **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. **APM AQ-3** **Speed Limit.** During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less. **APM AQ-4** **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	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		access/emergency entry/exit points as approved by Fire/Office of Emergency Services [OES] Department). **APM AQ-5** **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. **APM AQ-6** **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.	
Biological Resources			
Impact 3.5-1: Potential impacts on special-status species	Potentially Significant	**BIO-1** **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 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 • The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving. **BIO-2** **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 survey area; • regulatory framework for biological resource protection and consequences if violated; • sensitivity of the species to human activities;	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		• 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-3** **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	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		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-4** **Pre-Construction Nesting Bird Survey.** If construction or other project activities are scheduled to occur during the bird breeding season (typically February 1 through August 31 for raptors and March 15 through August 31 for the majority of migratory bird species), a pre-construction nesting-bird survey shall be conducted by a qualified avian biologist to ensure that active bird nests, including those for the loggerhead shrike and mountain plover will not be disturbed or destroyed. The survey shall be completed no more than three days prior to initial ground disturbance. The nesting-bird survey shall include the project site and adjacent areas where project activities have the potential to affect active nests, either directly or indirectly due to construction activity or noise. If an active nest is identified, the biologist shall establish an appropriately sized disturbance-limit buffer around the nest using flagging or staking. Construction activities shall not occur within any disturbance-limit buffer zones until the nest is deemed inactive by the qualified biologist. If construction activities cease for a period of greater than three days during the bird breeding season, a pre-construction nesting bird survey shall be conducted prior to the commencement of activities. 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.).	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
Cultural Resources			
Impact 3.6-1: Impact on historical resources	Potentially Significant	**CUL-1** **Cultural Monitoring.** Prior to construction, the project Applicant shall retain the services of a Qualified Professional Archaeologist meeting the Secretary of the Interior's Standards for a Qualified Archaeologist and require that all initial ground-disturbing work be monitored by someone trained in artifact and feature identification in monitoring contexts. A Supervising Archaeological Specialist and a Paleontological Monitor, to be retained by the project applicant, will be required to be present at the project construction phase kickoff meeting. **CUL-2** **Worker Environmental Awareness Program.** Prior to any ground disturbance, the supervising Archaeological Resources Specialist and Archaeological Resources Monitor shall conduct initial Worker Environmental Awareness Program (WEAP) training to all construction personnel, including supervisors, present at the outset of the project construction work phase, for which the Lead Contractor and all subcontractors shall make their personnel available. This WEAP training will educate construction personnel on how to work with the monitor(s) to identify and minimize impacts to paleontological resources and maintain environmental compliance and be performed periodically for new personnel coming on to the project as needed. **CUL-3** **Discovery of Previously Unidentified Archaeological Materials.** In the event of the discovery of previously unidentified archaeological materials, the construction contractor shall immediately cease all work activities within approximately 100 feet of the discovery. After cessation of excavation, the construction 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	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
		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 project 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 project Applicant shall implement an archaeological data recovery program. **CUL-4** **Schedule of Ground-Disturbing Activities.** The construction contractor shall provide the Supervising Archaeological Resources Specialist with a schedule of initial potential ground-disturbing activities. A minimum of 48 hours will be provided of commencement of any initial ground-disturbing activities such as vegetation grubbing or clearing, grading, trenching, or mass excavation. As detailed in the schedule provided, an Archaeological Monitor shall be present on site at the commencement of ground-disturbing activities related to the project. The monitor, in consultation with the Supervising Archaeologist, shall observe initial ground-disturbing activities and, as they proceed, make adjustments to the number of monitors as needed to provide adequate observation and oversight. All monitors will have stop-work authority to allow for recordation and evaluation of finds during construction. The monitor will maintain a daily record of observations to serve as an ongoing reference resource and to provide a resource for final reporting upon completion of 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 Supervising Archaeologist, Archaeological Monitor, and the lead contractor and subcontractors shall maintain a line of communication regarding schedule and activity such that the monitor is aware of all ground-disturbing activities in advance in order to provide appropriate oversight. **CUL-5** **Discovery of Archaeological Resources.** If archaeological resources are discovered, construction shall be halted within 50 feet of the find and shall not resume until a Qualified Archaeologist can determine the significance of the find and/or the find has been fully investigated, documented, and cleared. **CUL-6** **Archaeological Resources Monitoring Report.** At the completion of all ground-disturbing activities, the Consultant shall prepare an Archaeological Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the South Coastal Information Center (SCIC), as required.	
Impact 3.6-2: Impact on archaeological resources	Potentially Significant	Implement Mitigation Measures CUL-1 through CUL-6.	Less than Significant
Impact 3.6-3: Impact on Human Remains	Potentially Significant	**CUL-7** **Discovery of Human Remains.** In the unlikely event that human remains are discovered during ground-disturbing activities, then the proposed project would be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California Public Resources Code Section 5097.98 (NPS 1983).If human remains are found during ground-disturbing activities, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Imperial County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the Imperial County Coroner shall be notified immediately. If the human remains are determined to be	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
		prehistoric, the County Coroner shall notify the NAHC, which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.	
Geology and Soils			
Impact 3.7-2: Possible risks to people and structures caused by strong 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: • 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	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
		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 3.7-3: Possible risks to people and structures caused by seismic-related ground failure, including liquefaction	Potentially Significant	Implement Mitigation Measure GEO-1.	Less than Significant
Impact 3.7-5: Substantial soil erosion or the loss of topsoil	Potentially Significant	Implement Mitigation Measure GEO-1 and Mitigation Measure HYD-1.	Less than Significant
Impact 3.7-6: Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project	Potentially Significant	Implement Mitigation Measure GEO-1.	Less than Significant
Impact 3.7-7: 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	Potentially Significant	Implement Mitigation Measure GEO-1.	Less than Significant
Impact 3.7-9: Impact on paleontological resources	Potentially Significant	**GEO-2** **Paleontological Mitigation and Monitoring Plan.** Once a geotechnical report has been completed for the project, a qualified paleontologist shall review the boring logs and determine how deep paleontologically sensitive formations may	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
		be across the project site. The paleontologist shall use this information along with the results of the paleontological survey to determine if paleontological monitoring is warranted. If monitoring is warranted, a qualified paleontologist shall prepare a mitigation and monitoring plan to be implemented during project construction. **GEO-3** **Paleontological Monitoring.** Prior to construction, the project applicant shall retain the services of a Qualified Paleontologist and require that all initial ground-disturbing work be monitored by someone trained in fossil identification in monitoring contexts. A Supervising Paleontological Specialist and a Paleontological Monitor, to be retained by the project applicant, will be required to be present at the project construction phase kickoff meeting. **GEO-4** **Worker Environmental Awareness Program.** Prior to any ground disturbance, the Supervising Paleontological Resources Specialist and Paleontological Resources Monitor shall conduct initial Worker Environmental Awareness Program (WEAP) training to all construction personnel, including supervisors, present at the outset of the project construction work phase, for which the Lead Contractor and all subcontractors shall make their personnel available. This WEAP training will educate construction personnel on how to work with the monitor(s) to identify and minimize impacts to paleontological resources and maintain environmental compliance and be performed periodically for new personnel coming on to the project as needed. **GEO-5** **Schedule of Ground-Disturbing Activities.** During construction, the construction contractor shall provide the Supervising Paleontological Resources Specialist with a schedule of initial potential ground-disturbing activities. A minimum of 48 hours will be provided of commencement of any	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
		initial ground-disturbing activities such as vegetation grubbing or clearing, grading, trenching, or mass excavation. As detailed in the schedule provided, a Paleontological Monitor shall be present on site at the commencement of ground-disturbing activities related to the project. The monitor, in consultation with the Supervising Paleontologist, shall observe initial ground-disturbing activities and, as they proceed, make adjustments to the number of monitors as needed to provide adequate observation and oversight. All monitors will have stop-work authority to allow for recordation and evaluation of finds during construction. The monitor will maintain a daily record of observations to serve as an ongoing reference resource and to provide a resource for final reporting upon completion of the project. The Supervising Paleontologist, Paleontological Monitor, and the Lead Contractor and subcontractors shall maintain a line of communication regarding schedule and activity such that the monitor is aware of all ground-disturbing activities in advance in order to provide appropriate oversight. **GEO-6** **Discovery of Paleontological Resources.** During construction, if paleontological resources are discovered, construction shall be halted within 50 feet of any paleontological finds and shall not resume until a Qualified Paleontologist can determine the significance of the find and/or the find has been fully investigated, documented, and cleared. **GEO-7** **Paleontological Resources Monitoring Report.** At the completion of all ground-disturbing activities, the Supervising Paleontological Specialist shall prepare a Paleontological Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all paleontological finds.	
Hydrology/Water Quality			

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
Impact 3.10-1: 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 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	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
		• 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.	

Table ES-1. Summary of Project Impacts and Proposed Mitigation Measures

Environmental Impact	Significance Before Mitigation	Proposed Mitigation Measures	Significance After Mitigation
Impact 3.10-3: Alter the existing drainage pattern of the site or area resulting in siltation or on- or off-site erosion	Potentially Significant	Implement Mitigation Measure HYD-1.	Less than Significant
Impact 3.10-4: Alter the existing drainage pattern of the site or area resulting in flooding on- or off-site	Potentially Significant	Implement Mitigation Measure HYD-2.	Less than Significant
Impact 3.10-5: Alter the existing drainage pattern of the site or area such that runoff increases would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff	Potentially Significant	Implement Mitigation Measure HYD-1.	Less than Significant
Impact 3.10-8: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan	Potentially Significant	Implement Mitigation Measures HYD-1 and HYD-2.	Less than Significant

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 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 located south of the project site on privately-owned agricultural lands, similar to the project site. The site, located on Assessor's Parcel Numbers (APN) 037-160-017, 037-160-018, and 037-160-019 totals approximately 282 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 immediately north of State Route 78, a major U.S. State Highway traversed by large numbers of transient public viewers. When compared to the proposed project, the alternative site would result in potentially significant impacts associated with aesthetics and visual quality. While the proposed project identified no significant impacts for aesthetics and visual quality, implementation of the solar project at the alternative location site has the potential to permanently alter the existing visual character and visual quality of the alternative site, which is characterized by agricultural lands and minor agricultural development under existing viewer locations from SR 78, looking north. As such, aesthetic impacts at the alternative location site, adjacent to SR 78, would be greater than those at the proposed project site, which is located adjacent to small, less-traveled, agricultural roads (N Best Road and Baughman Road), approximately 0.7 mile east of the major thoroughfare, SR 111.

  Similarly, a glare hazard analysis prepared for the project (Appendix B of this EIR) concluded that sensitive viewers near the proposed project, including residences, a nearby golf course, major roadways, and approach slopes associated with the Brawley Municipal Airport, would

not experience glare effects from the project. Comparatively, due to the alternative site location's close proximity immediately north of SR 78, potential glare impacts resulting from the solar array would be potentially significant to viewers traveling on SR 78.

- The alternative location site, as compared to the proposed project site, is bisected by the Shellenberger Drain. With the implementation of mitigation, impacts on surface water quality as attributable to the proposed project, which has been designed to avoid bisecting any waterways, would be reduced to a less than significant level. However, construction activities at the alternative site location have the potential to impact hydrology and water quality (due to the presence of the Shellenberger Drain) when 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 (to hydrology and water quality) 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.

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 Senate Bill 32).

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 40 MW solar energy facility and associated infrastructure on approximately 231-acre project site (APN 026-030-008) located approximately 11 miles northeast of Brawley in unincorporated Imperial County. The Alternative 2 project site is designated as Agriculture under the County's General Plan and zoned S-2-RE and A-3-RE (Open Space/Preservation and Heavy Agriculture, both within the RE Overlay Zone).

Similar to the proposed project, Alternative 2 would require approval of a CUP to allow for the construction and operation of a solar project. However, compared to the proposed project, the Alternative 2 project site is located within the RE Overlay Zone and, as such, would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. Additionally, while the proposed project (A-2-G Zone) would not require a Variance, the S-2-RE Zone associated with the Alternative 2 site allows a maximum height limit of 40 feet for non-residential structures and 100 feet for communication towers. As such, a Variance would be required under this alternative because the proposed height of the transmission towers (66 feet) and microwave tower (maximum of 100 feet) would exceed 40 feet. This alternative's gen-tie line could potentially interconnect to IID's existing Midway Substation located approximately 4.75 miles northwest of the solar facility. Consultation and coordination with IID would be required to determine if the Midway Substation has existing capacity or would require upgrades for this alternative's interconnection.

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: cultural resources, hydrology and water quality, and tribal cultural resources. 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 solar energy facility and associated infrastructure on five parcels totaling approximately 288 acres (APN 021-190-003; 021-380-004; 021-380-005; 021-380-012; and 021-380-013) located approximately 0.5 mile south of Slab City. This alternative is 61 acres larger than the proposed project site. Therefore, more solar panels could be installed on this site compared to the proposed project. 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. Similar to the proposed project site, 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 (66 feet) would not exceed 120 feet. This alternative's gen-tie line could potentially interconnect to IID's existing Midway Substation located approximately 4 miles southeast of the solar facility. Consultation and coordination with IID would be required to determine if the Midway Substation has existing capacity or would require upgrades for this alternative's interconnection.

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, air quality, biological resources, cultural resources, hydrology/water quality, tribal cultural resources, and utilities and service systems. 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 200 acres of total rooftop area) may be required to attain the proposed project's capacity of 40 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 18,320,000 square feet (approximately 420 acres) would be required to produce 40 MW.

As shown on Table ES-2, implementation of Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative would avoid impacts on agricultural resources compared to the proposed project. It would result in reduced impacts for the following environmental issue areas as

[1] http://newsroom.edison.com/releases/california-regulators-approve-southern-california-edison-proposal-to-create-nations-largest-solar-panel-installation-program

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

Table ES-2 provides a qualitative comparison of the impacts for each alternative compared to the proposed project. 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 ES-2, Alternative 2 would be the environmental superior alternative because it would reduce impacts for the following environmental issue areas as compared to the proposed project: aesthetics and agricultural resources. Alternative 2 would meet most of the basic objectives of the proposed project. However, the project applicant does not own, or otherwise control this property.

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	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Potentially Significant *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
Agricultural Resources	Less than Significant with Mitigation	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Avoid	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Avoid	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Avoid
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:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*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:* Similar Impact	*CEQA Significance:* Less than Significant with Mitigation *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
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
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
Hazards and Hazardous Materials	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*

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
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:* Greater 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:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact
Public Services	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*
Transportation	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

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
Tribal Cultural Resources	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Similar 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
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:* Greater Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Greater Impact

Notes:
CEQA=California Environmental Quality Act; GHG=greenhouse gas

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 Brawley 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 2.0 of this EIR.

1.1 Overview of the Proposed Project

The project site is located on approximately 227 acres of privately-owned land in the unincorporated area of Imperial County, California. The site is approximately one mile north from the City of Brawley's jurisdictional limit. The project site is south of Baughman Road, west of North (N) Best Avenue, and north of Andre Road. The City of Brawley Wastewater Treatment Plant is located along the western edge of the project site.

The proposed project involves the construction and operation of a 40 megawatt (MW) photovoltaic (PV) solar facility with an integrated 40 MW battery storage system (BESS) (not to exceed 80 MW) on approximately 227 acres of privately-owned land. The proposed project would be comprised of bifacial solar PV arrays panels, an on-site substation, BESS system, fiberoptic line or microwave tower, inverters, transformers, underground electrical cables and access roads. The proposed project would connect to the existing North Brawley Geothermal Power Plant substation located southwest of the project site via an approximately 1.8-mile long aboveground 92 kilovolt generation tie line.

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. **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 northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site (APNs 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006) is located outside of the RE Overlay Zone. Therefore, the applicant is requesting a General Plan Amendment to include/classify all five project parcels into the RE Overlay Zone. No change in the underlying General Plan land use (Agriculture) is proposed.
2. **Zone Change.** The project site is currently zoned General Agricultural with a Geothermal Overlay (A-2-G). The applicant is requesting a Zone Change to include/classify all five project parcels into the Renewable Energy/Geothermal (REG) Overlay Zone (A-2-REG).

3. **Approval of CUP.** 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 with an integrated battery storage system. The project site is located on five privately-owned legal parcels zoned General Agricultural with a Geothermal Overlay (A-2-G). With approval of the zone change, the project site would be zoned General Agricultural with a REG Overlay Zone (A-2-REG). Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone subject to approval of a CUP from Imperial County: solar energy electrical generator, battery storage facility, electrical substations, communication towers, and facilities for the transmission of electrical energy.
4. **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)

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 United States Army Corps of Engineers (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 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. In 2018, SB 100 was signed by Governor Brown, codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

1.2.3 Senate Bill 32

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include § 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

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 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 Draft EIR has been distributed to various federal, state, regional, local agencies and interested parties for a 45-day public review period, from December 27, 2021 through February 10, 2022, in accordance with Section 15087 of the CEQA Guidelines. This Draft EIR and documents incorporated by reference are available for public review at the County of Imperial Planning and Development Services Department, 801 Main Street, El Centro, California 92243. Documents may be reviewed during regular business hours.

David Black, 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 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 Brawley Solar Energy Facility Project on July 26, 2021. 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 July 25, 2021. 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
- California Department of Conservation
- Imperial Irrigation District
- Imperial County Air Pollution Control District
- Carolyn Allen and on behalf of Donna Tisdale, Members of BackCountry Against Dumps and Donbee Farms
- Carolyn Allen and on behalf of Donna Tisdale, Larry Cox, and Michael Cox, Donbee Farms and Backcountry Against Dumps
- Donna Tisdale, Michael Cox, Carolyn Allen, Lawrence Cox; C/O Donbee Farms

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 Brawley Solar Energy Facility Project was discussed as an informational item at the County's Environmental Evaluation Committee meeting on August 12, 2021.

Additionally, a virtual scoping meeting for the general public as well public agencies was held on August 12, 2021 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 July 26, 2021. A virtual meeting was held by the Imperial County Planning & Development Services Department. 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. One comment letter was 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
- Agriculture Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- GHG Emissions
- Hazards and Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning
- Public Services (Fire Protection and Police Protection)
- Transportation
- Tribal Cultural Resources
- Utilities/Service Systems (Water Supply)

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 Forestry Resources, Energy, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, 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 discussed in Chapter 6.0, Effects Found Not Significant.

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 potential impacts related to the conversion of farmland to non-agricultural uses, damage to crops, wildlife, water supply, fire hazards associated with the battery energy storage system, health effects from air pollution, noise and hazardous materials, and change of visual character.

1.4.5 Document Organization

The structure of the Draft EIR is identified below. The Draft EIR is organized into 10 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 Brawley 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 Brawley 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 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) battery energy storage system; and, 3) gen-tie line that would connect the proposed on-site substation to the point of interconnection at the existing North Brawley Geothermal Power Plant substation. The solar energy facility, battery energy storage system and gen-tie are collectively referred to as the "proposed project" or "project."

2.1 Project Location

The project site is located on approximately 227 acres of privately-owned land in the unincorporated area of Imperial County, California (Figure 2-1). The site is approximately one mile north from the City of Brawley's jurisdictional limit. The project site is south of Baughman Road, west of North (N) Best Avenue, and north of Andre Road. The Union Pacific Railway transects the project site. As shown on Figure 2-2, the project site is proposed on five parcels. Table 2-1 identifies the individual assessor parcel numbers (APN) with their respective acreage and zoning.

As shown on Figure 2-2, the gen-tie line would originate from the southern edge of the project site and then head west along Andre Road to interconnect to the IID existing North Brawley Geothermal Power Plant substation, located at Hovley Road and Andre Road. The gen-tie route would be approximately 1.8 miles.

Currently, the project site contains alfalfa fields within different levels of harvest. North and east of the project site is undeveloped agricultural land. South of the project site is a mixture of undeveloped agricultural land and dirt lots used for staging activities. The Del Rio Country Club golf course is located to the south of the site. The City of Brawley Wastewater Treatment Plant is located along the western edge of the project site.

Table 2-1. Project Assessor Parcel Numbers, Acreages, and Zoning

APN	Acreage	Zoning
037-140-020	61.73	A-2-G
037-140-021	68.71	A-2-G
037-140-022	38.15	A-2-G
037-140-023	24.71	A-2-G
037-140-006	33.68	A-2-G
Total Gross Acres	**227**	**--**

APN = assessor parcel number; A-2-G = General Agricultural with Geothermal Overlay

Figure 2-1. Regional Location

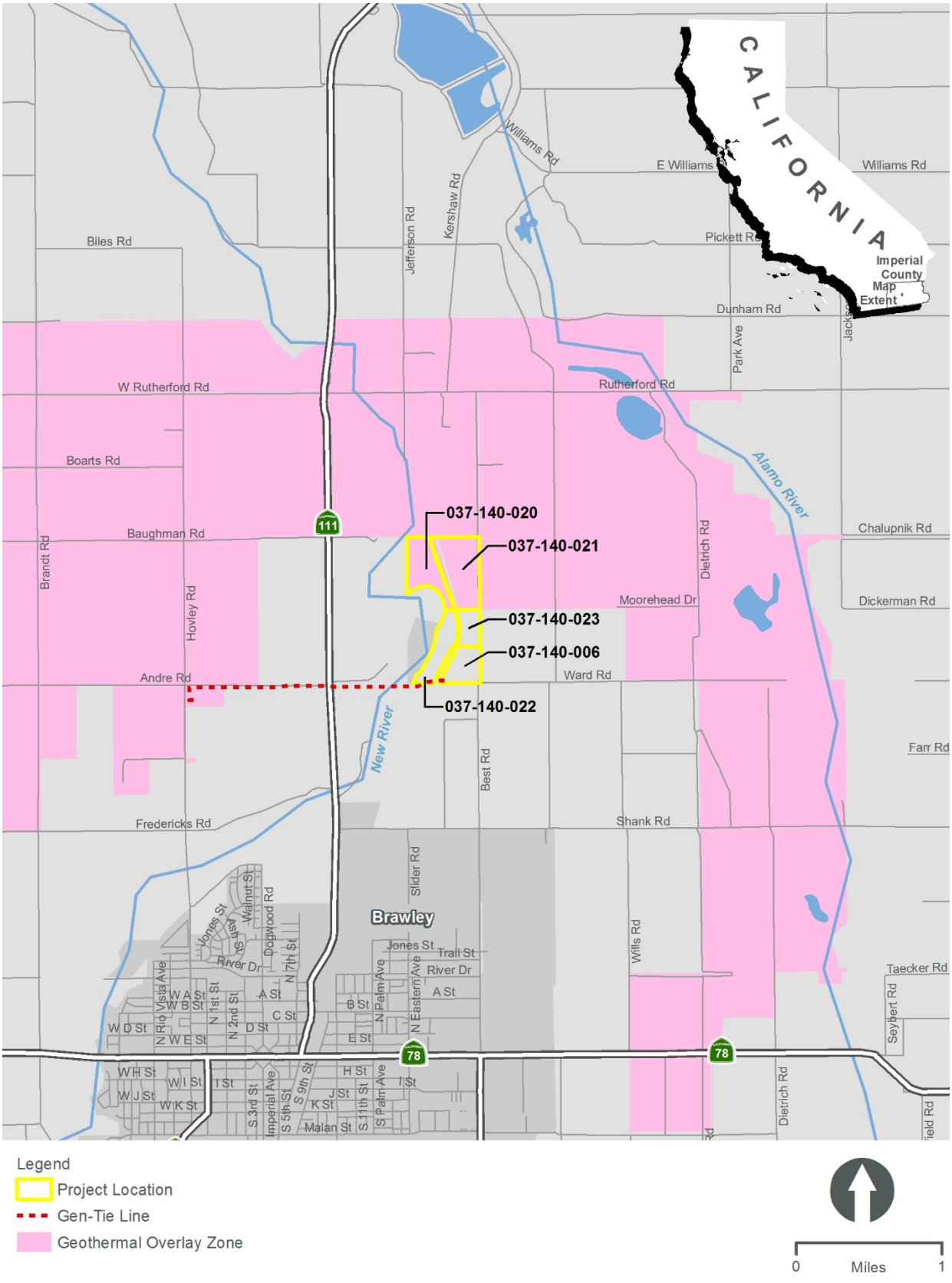
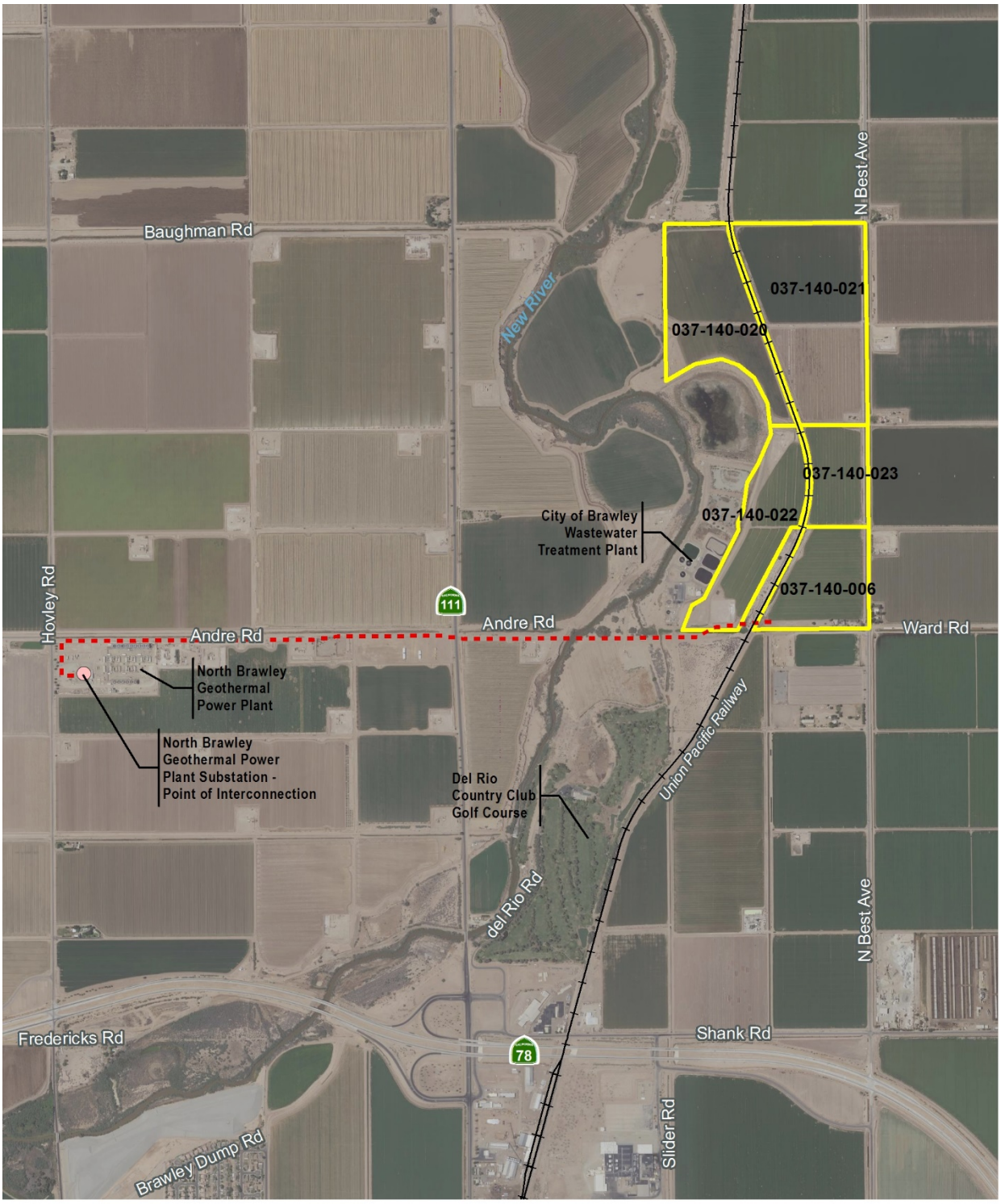


Figure 2-2. Project Site



2.1.1 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.

As shown on Figure 2-1, the northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site (APNs 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006) is located outside of the RE Overlay Zone. Therefore, the applicant is requesting a General Plan Amendment to include/classify all five project parcels into the RE Overlay Zone. No change in the underlying General Plan land use (Agriculture) is proposed.

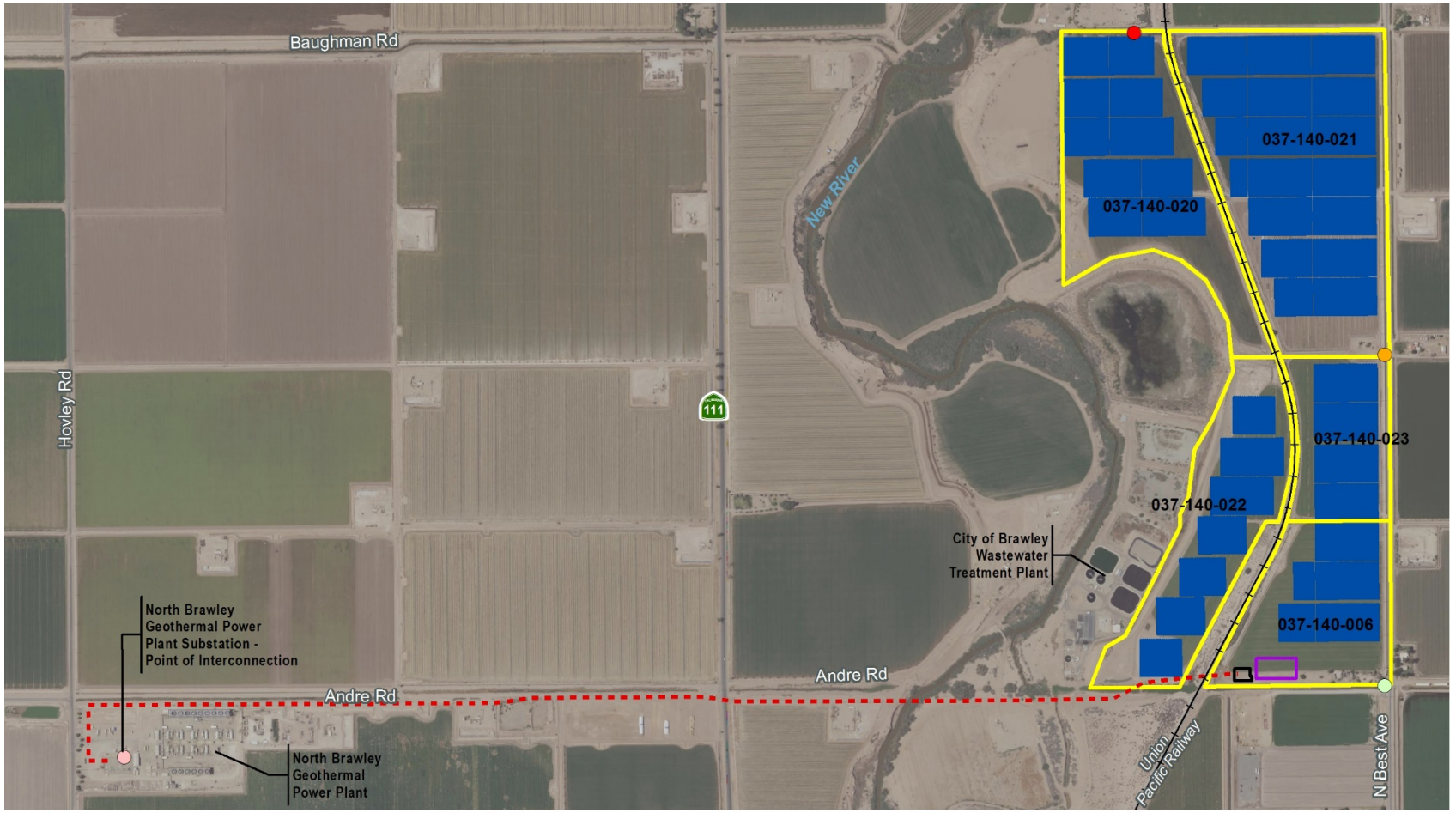
2.2 Project Objectives

- 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 markets as soon as possible.
- Develop, construct, own and operate the Brawley 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 power lines.
- Minimize and mitigate any potential impact to sensitive environmental resources within the project area.

2.3 Project Characteristics

The proposed project involves the construction and operation of a 40 MW PV solar facility with an integrated 40 MW BESS (not to exceed 80 MW) on approximately 227 acres of privately-owned land. The proposed project would be comprised of bifacial solar PV arrays panels, an on-site substation, BESS, generation tie-line (gen-tie), fiberoptic line and microwave tower, inverters, transformers, underground electrical cables, access roads. These project components are described in detail below and depicted in Figure 2-3.

Figure 2-3. Site Plan



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2.3.1 Photovoltaic Panels/Solar Arrays

Solar cells, also called PV cells, convert sunlight directly into electricity. PV cells combine to create solar modules, or panels, and many solar panels combined together to create one system is called a solar (or PV) array. The entire array would utilize 13 inverters and transformers collectively called a Power Conversion Station (PCS) for each block of solar panels. The inverters within the PCS are rated at 3496 kV amperes (KVA). The power produced from the solar panels would be low voltage DC, which is routed to the inverters to convert the DC power to alternating current (AC).

The proposed project's PV arrays would be comprised of solar bifacial high-power dual cell PV panels. Panels would be organized into electrical groups referred to as "blocks," where the proposed project would require 13 blocks. Each panel is 3.2 feet by 6.5 feet and is on single-axis horizontal trackers in blocks that each hold 3,809 PV panels in 28 strings. The panels would be oriented from east to west for maximum exposure and the foundation would be designed based on soil conditions. The PV panels 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).

2.3.2 Battery Energy Storage System

The proposed project's BESS component would be placed on a 54,000 square-foot concrete pad at the southern edge of the project site. The BESS would consist of 12 banks of batteries totaling up to 432 enclosures. Each bank of batteries would be supported by a DC Combiner, control panel, and inverter/transformer skid. Each of the enclosures would utilize self-contained liquid cooling systems and include built-in fire suppression systems. All batteries would be lithium-ion based capable of storing 40 MW (not to exceed 80 MW).

A lithium-ion battery is a type of rechargeable battery that moves from the negative electrode through an electrolyte to the positive electrode during discharge, and back when charging. Lithium-ion batteries use an intercalated lithium compound as the material at the positive electrode and typically graphite at the negative electrode. The batteries have a high energy density, no memory effect and low self-discharge. Lithium-ion batteries would be mounted in racks. These racks would be integrated into containers. Lithium-ion battery racks sit side-by-side and typically have 48 inches of spacing in front of the rack and 18 inches of spacing in the rear of the rack. Spacing may be increased for serviceability. The project design would meet minimum spacing required by code.

2.3.3 Substation

The proposed 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, with the footprint encompassing approximately 1.2 acres. The tallest feature would be the dead-end portal structure (39 feet 6 inches) coming in off the gen-tie line, which would have a lighting mast attached, making it 54 feet 6 inches total. The onsite substation control room would house the SCADA system, switchgear, breakers, and DC batteries. Additionally, a 20kV emergency backup generator would be located adjacent to this control room for the HVAC system. The proposed substation site would be located at

the southern edge of the project site, adjacent to the BESS. The California Building Code and the IEEE 693, Recommended Practices for Seismic Design of Substations, will be followed for the substation's design, structures, and equipment.

2.3.4 Gen-Tie Line

The proposed project would connect to a switchyard located at the southern edge of the project site and then routed through the BESS for energy storage. Power would then be transferred via a 1.8-mile-long double circuit 13.8 and 92 kV gen-tie line with 66- foot-high poles to interconnect to the IID' existing North Brawley Geothermal Power Plant substation, located at Hovley Road and Andre Road, southwest of the project site. The transmission line would span the New River. A 12-inch diameter conduit railroad undercrossing would connect the PV arrays from the western side of the railroad tracks to the inverters on the eastern side.

2.3.5 Fiberoptic Cable and Microwave Tower

A proposed fiberoptic line from the project substation would be connected with the existing North Brawley Geothermal Power Plant substation approximately 1.8 miles to the southwest, which is required to connect the project substation to the region's telecommunications system. Overall, this would provide SCADA, protective relaying, data transmission, and telephone services for the proposed project substation and associated facilities. New telecommunications equipment would be installed at the project substation within the unmanned Mechanical and Electrical Equipment Room (MEER). The proposed fiber optic telecommunications cable, once past the point of interconnection, would utilize existing transmission lines to connect to the existing North Brawley Geothermal Power Plant substation. The length of this proposed fiber optic telecommunications cable route would be approximately 1.8 miles. Alternatively, a 40 to 100-feet tall microwave tower could replace the need for a fiberoptic line to transmit data offsite. If selected, this microwave tower would be located within the project substation footprint.

2.3.6 Security

Six-foot high chain link fencing topped with barbed wire would be installed around the perimeter of the project site at the commencement of construction and site access would be limited to authorized site workers. Points of ingress/egress would be accessed via locked gates. In addition, a motion detection system and closed-circuit camera system may also be installed. The site would be remotely monitored 24 hours per day, 7 days per week. In addition, routine unscheduled security rounds may be made by the security team monitoring the site security.

2.3.7 Site Access

As shown in Figure 2-3, primary access to the project site would be located off N Best Avenue. A secondary emergency access road would be located in the northwest portion of the project site. Access roads would be constructed with an all-weather surface, to meet the County Fire Department's standards. Points of ingress/egress would be accessed via locked gates that can be opened by any emergency responders. An all-weather surface access road would surround the perimeter of the project site, as well as around solar blocks no greater than 500 by 500 feet.

2.3.8 Fire Protection/Fire Suppression

Fire protection systems for battery systems would be designed in accordance with California Fire Code and would take into consideration the recommendations of the National Fire Protection Association (NFPA) 855.

Fire suppression agents such as Novec 1230 or FM 2000, or water may be used as a suppressant. In addition, fire prevention methods would be implemented to reduce potential fire risk, including voltage, current, and temperature alarms. Energy storage equipment would comply with Underwriters Laboratory (UL)-95401 and test methods associated with UL-9540A. The project would include lithium-ion batteries. For lithium-ion batteries storage, a system would be used that would contain the fire event and encourage suppression through cooling, isolation, and containment. Suppressing a lithium-ion (secondary) battery is best accomplished by cooling the burning material. A gaseous fire suppressant agent (e.g., 3M™ Novec™ 1230 Fire Protection Fluid or similar) and an automatic fire extinguishing system with sound and light alarms would be used for lithium-ion batteries.

Water for fire suppression would be obtained from a ground storage tank existing onsite which fills from the Best Canal along the eastern property boundary.

To mitigate potential hazards, redundant separate methods of failure detection would be implemented. These would include alarms from the Battery Management System (BMS), including voltage, current, and temperature alarms. Detection methods for off gas detection would be implemented, as applicable. These are in addition to other potential protective measures such as ventilation, overcurrent protection, battery controls maintaining batteries within designated parameters, temperature and humidity controls, smoke detection, and maintenance in accordance with manufacturer guidelines. Remote alarms would be installed for operations personnel as well as emergency response teams in addition to exterior hazard lighting. In addition, an Incidence Response Plan would be implemented. Additionally, the project applicant would contribute its proportionate share for purchase of any fire-suppression equipment, if determined warranted by the County fire department for the proposed project.

2.4 Project Construction

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 power-block, after the gen-tie line has been completed. 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.

2.4.1 Construction Personnel and Equipment

The proposed project's workforce would consist of laborers, electricians, supervisory personnel, support personnel and construction management personnel. Up to 120 people are expected to be on-site per day. Project laydown and construction staff parking is expected to be located on-site or at the existing North Brawley Geothermal Power Plant in an approximately 4-acre area.

Typical equipment to be used during project construction and commissioning is listed in Table 2-2.

Table 2-2. 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 fires

2.4.2 Construction Schedule, Sequence, and Phasing

Construction is anticipated to start in quarter four of 2021 and would take approximately 6-9 months to complete. Construction would commence only after all required permits and authorizations have been secured. 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. The County's construction equipment operation shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. on Saturday. No commercial construction operations are permitted on Sunday or holidays.

Construction of the 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.

- Site Preparation (1 month)
- PV System Installation and Testing (7 months)
- Site Clean-Up and Restoration (1 month)

Site Preparation

Project construction would include the renovation of existing dirt roads to all-weather surfaces (to meet the County standards) from N Best Avenue to the City of Brawley wastewater treatment plant. Construction of the proposed project would begin with clearing of existing brush and installation of fencing around the project boundary. Fencing would consist of a six-foot chain-link fence topped with barbed wire. A 20-foot road of engineering-approved aggregate would 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 size of the staging area would shrink 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.

PV System Installation and Testing

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 to 0.25 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.

Concrete would be required for the footings, foundations and pads for the transformers and substation equipment. Concrete would be produced at an off-site location by a local provider and transported to the site by truck. The PCS housing the inverters utilize a precast concrete base. Final specifications for concrete would be determined during detailed design engineering, but any related production would meet applicable building codes. Wastes generated during construction would be non-hazardous and may contain any of the following: cardboard, wood pallets, copper wire, scrap steel, common trash and wood wire spools, and as much as possible of the waste that is generated during construction would be recycled.

No hazardous waste is expected to be generated during construction of the proposed project. However, field equipment used during construction would contain various hazardous materials such as hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints and other petroleum-based products contained in most construction vehicles. The storage, handling, and potential spills of these materials contained within the field equipment would adhere to all applicable local, State, and Federal regulations.

Site Clean-Up and Restoration

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 also 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. The construction contractor would be given this list and final payment would not be received until all items are completed.

2.4.3 Water Use

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, compaction efforts, and fire suppression. Water would be obtained from a ground storage tank existing onsite which fills from the Best Canal along the eastern property boundary. A dust palliative with low environmental toxicity would also be used to suppress dust as approved by CARB and the ICAPCD.

Potable water would be brought to the project site for drinking and domestic needs.

2.5 Operations and Maintenance

Once fully constructed, the 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 approximately two employees would only be onsite up to four times per year to wash the solar 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.

2.5.1 Water Use

Estimated annual water consumption for operation and maintenance of the proposed project, including periodic PV module washing and fire suppression, would be approximately 3.1-acre feet per year (AFY), which would be supplied to the project site via the adjacent Best Canal and trucked to the project site as needed.

2.6 Restoration of the Project Site

Electricity generated by the facility could be sold under the terms of a power purchase agreement (PPA) with a power purchaser (i.e., utility service provider). At the end of the PPA term, the owner of the facility may choose to enter into a subsequent PPA, update technology and re-commission, or decommission and remove the generating facility and its components. Upon decommissioning, the site could be converted to other uses in accordance with applicable land use regulations in effect at that time. A collection and recycling program will be executed to promote recycling of project components and minimize disposal in landfills. All permits related to decommissioning would be obtained, where required.

Project decommissioning may include the following activities:

- The facility would be disconnected from the utility power grid.
- Project components would be dismantled and removed using conventional construction equipment and recycled or disposed of safely.
- PV panel support steel and support posts would be removed and recycled off-site by an approved metals recycler.
- All compacted surfaces within the project site and temporary on-site haul roads would be de-compacted.
- Electrical and electronic devices, including inverters, transformers, panels, support structures, lighting fixtures, and their protective shelters would be recycled off-site by an approved recycler.
- All concrete used for the underground distribution system would be recycled off-site by a concrete recycler or crushed on-site and used as fill material.
- Fencing would be removed and recycled off-site by an approved metals recycler.
- Gravel roads would be removed; filter fabric would be bundled and disposed of in accordance with all applicable regulations. Road areas would be backfilled and restored to their natural contour.
- Soil erosion and sedimentation control measures would be re-implemented during the decommissioning period and until the site is stabilized.

2.7 Required Project Approvals

2.7.1 Imperial County

The following are the primary discretionary approvals required for implementation of the project:

1. **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. As shown in Figure 2-1, the northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site (APNs 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006) is located outside of the RE Overlay Zone. Therefore, the applicant is requesting a General Plan Amendment to include/classify all five

project parcels into the RE Overlay Zone. No change in the underlying General Plan land use (Agriculture) is proposed.

2. **Zone Change.** The project site is currently zoned General Agricultural with a Geothermal Overlay (A-2-G). The applicant is requesting a Zone Change to include/classify all five project parcels into the Renewable Energy/Geothermal (REG) Overlay Zone (A-2-REG).
3. **Approval of CUP.** 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 with an integrated battery storage system. The project site is located on five privately-owned legal parcels zoned General Agricultural with a Geothermal Overlay (A-2-G). With approval of the zone change, the project site would be zoned General Agricultural with a REG Overlay Zone (A-2-REG). Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone subject to approval of a CUP from Imperial County: solar energy electrical generator, battery storage facility, electrical substations, communication towers, and facilities for the transmission of electrical energy.
4. **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
- ICAPCD – Fugitive Dust Control Plan, Rule 801 Compliance
- CDFW (Trustee Agency) – ESA Compliance, Section 1600 Streambed Alteration Agreement
- USFWS – ESA Compliance
- IID – Water Supply Agreement

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 3.2 through 3.15 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 July 26, 2021. 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

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 Impact Assessment for the Brawley Solar Project* (Appendix B of this EIR) prepared by Chambers Group, Inc.

3.2.1 Existing Conditions

Regional

Imperial County encompasses 4,597 square miles in the southeastern portion of California. The County is bordered by Riverside County on the north, the international border of Mexico on the south, San Diego County on the west and Arizona on the east. The length and breadth of the County provide for a variety of visual resources ranging from desert, sand hills, mountain ranges, and the Salton Sea.

The desert includes several distinct areas that add beauty and contrast to the natural landscape. The barren desert landscape of the Yuha Desert, lower Borrego Valley, East Mesa, and Pilot Knob Mesa provide a dramatic contrast against the backdrop of the surrounding mountain ranges. The West Mesa area is a scenic desert bordered on the east by the Imperial Sand Dunes, the lower Borrego Valley, the East Mesa, and Pilot Knob Mesa.

The eastern foothills of the Peninsular Range are located on the west side of the County. The Chocolate Mountains, named to reflect their dark color, are located in the northeastern portion of the County, extending from the southeast to the northwest between Riverside County and the Colorado River. These mountains reach an elevation of 2,700 feet making them highly visible throughout the County.

Project Site and Vicinity

The project is located on five privately owned parcels designated for agricultural uses. Currently the project site contains alfalfa fields within different levels of harvest. The project site is approximately one mile north from the City of Brawley's jurisdictional limit. Brawley is relatively central 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 Salton Sea lies northwest of the project site and sits comparatively lower in the landscape than the project site, as does much of the agricultural land to the immediate west and south.

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 residences and land uses. North of the project site is agricultural land. Along the eastern edge of the project site there are two residences and agricultural land. South of the project site is a mixture of agricultural land and dirt lots used for staging activities. The City of Brawley Wastewater Treatment Plant is located along the western edge of 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 Quail Brush Scrub and Bush Seepweed, are widespread on undeveloped and unfarmed lands, and ruderal vegetation is 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 middle ground (0.25 to 3-5 miles away) views throughout the area. They are identifiable by their vapor plumes. These views to the west from the project site are backdropped by the Coyote Mountains and Fish Creek Mountains while views to the east are backdropped by the Chocolate Mountains.

Visual Character

Aerial imagery was reviewed to identify where the proposed project would potentially be visible from visually sensitive areas and selected preliminary viewpoints for site photography. Field surveys were conducted in March 2021 to photo-document existing visual conditions and views toward the project site. A representative subset of photographed viewpoints was selected. 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.

Figure 3.2-1 illustrates the photo documented key observation points (KOP) and the direction to which the photographs were taken. The photographs depicting the existing condition at the project site are presented below, and the visual simulations at each KOP depicting the proposed condition are presented in Section 3.2.3. Descriptions of the existing KOPs are as follows:

KOP 1 – View from North Best Avenue. KOP 1 is located along N Best Avenue, at the northeast corner of the project site (Figure 3.2-2). The view from KOP 1 is to the southwest, toward the proposed project's solar arrays (Viewpoint 1). This viewpoint represents views from an identifiable point along the most proximate roadway, where topography allows visibility of the project site. Additionally, the viewpoint represents the residents located at 5210 N Best Avenue in Brawley, California. The view is characterized by flat agricultural land to the west, south, and east with the nearby residence to the northeast. The Coyote Mountains and Fish Creek Mountains are visible far off to the south. The view of the project site is mostly unobstructed except for utility poles traveling along the western side of N Best Avenue.

KOP 2 – View from North Best Avenue and Ward Road. KOP 2 is located at the intersection of N Best Avenue and Ward Road, at the southeast corner of the project site (Figure 3.2-3). The view from KOP 2 is to the northwest, toward the proposed project's solar arrays, BESS, and substation (Viewpoint 2). This viewpoint represents views from an identifiable point along the most proximate roadway, where topography allows visibility of the project site. Additionally, the viewpoint represents the residents located at 5000 N Best Avenue and 5002 N Best Avenue. The view is characterized by flat agricultural land to the north; an abandoned residence and fenced corral to the west; a vacant dirt lot to the south; and the nearby residences to the northeast. Vegetation along the New River is visible to the west and the Chocolate Mountains are visible far off to the north and west. The view of the project site is partially obstructed by vegetation along the old corral and utility poles traveling along the western side of N Best Road.

KOP 3 – View from north end of Del Rio Country Club and Golf Course. KOP 3 is located along the Union Pacific railroad tracks on the northwest end of Del Rio Country Club and Golf Course, approximately 0.25 mile from the project site (Figure 3.2-4). The view from KOP 3 is to the north, toward the proposed project's solar arrays, BESS, substation, and gen-tie line. This viewpoint represents golfers and staff at Del Rio Country Club, where topography allows views of the project site, as well as views from the Union Pacific railway line. The view is characterized by flat, undeveloped land with sparse vegetation to the north and northeast, agricultural land to the east, and the

landscaped golf course to the west. The railroad tracks travel north through the middle of the view, with the Chocolate Mountain Range visible far off to the north. The view of the project site is unobstructed.

KOP 4 – View from State Route 111 and Andre Road. KOP 4 is located at the corner of SR 111 and Andre Road, along the gen-tie line route (Figure 3.2-5). The view from KOP 4 is to the east, toward the proposed project's gen-tie line, BESS, substation, and solar arrays. This viewpoint represents views from an identifiable point along a well-traveled roadway in the County, where topography allows visibility of the project site. The view is characterized by mainly flat agricultural land to the north and south. The City of Brawley Wastewater Treatment Plant is within the northern portion of the view and a dirt access road leads to an industrial dirt lot with pipelines directly east of the view. The Chocolate Mountain Range is visible far off to the east. The view of the project site is partially obstructed by the City of Brawley Wastewater Treatment Plant, utility poles, and small amounts of vegetation in the foreground.

Figure 3.2-1. Key Observation Points

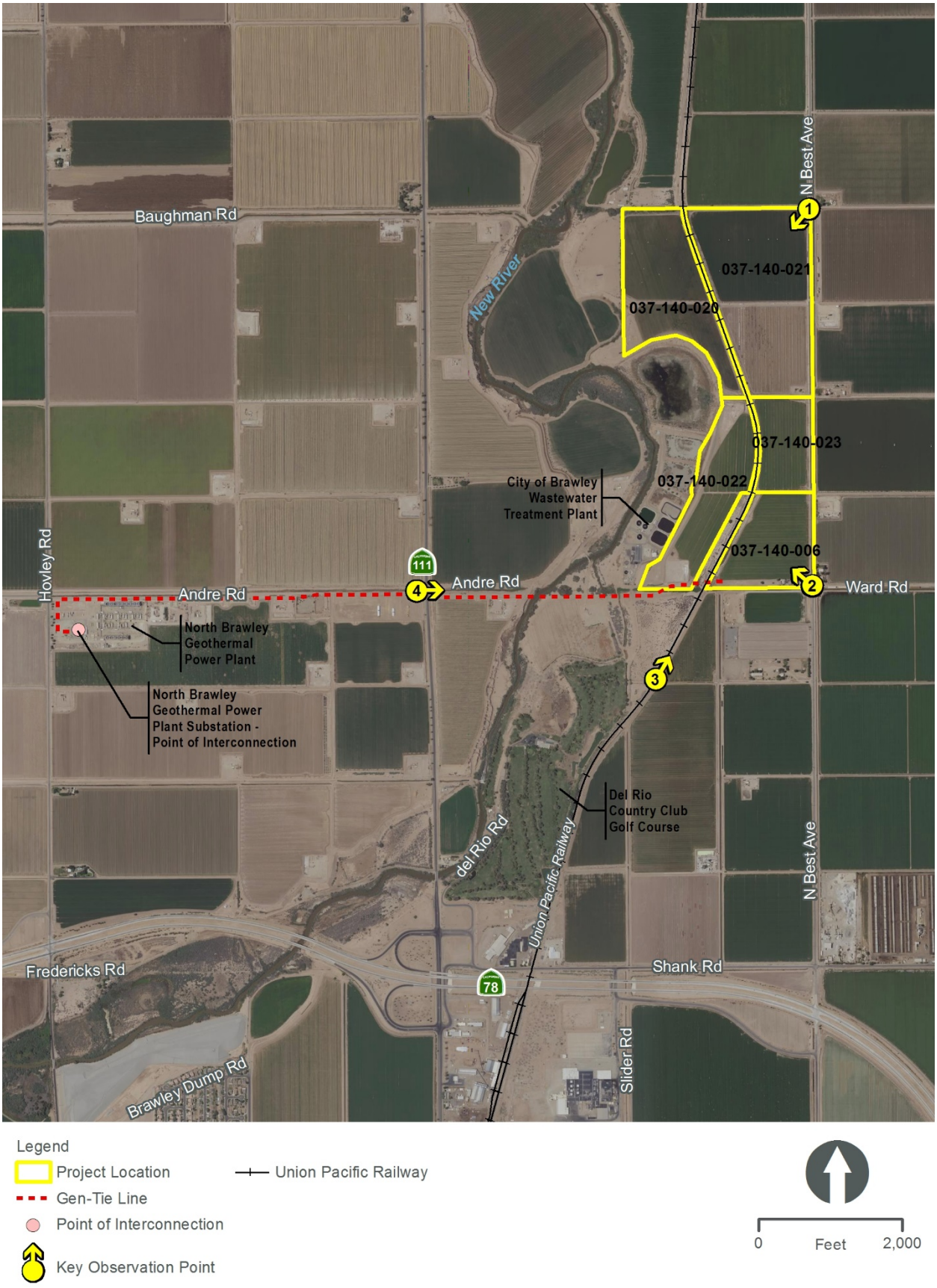

Figure 3.2-2. Existing Key Observation Point 1

Figure 3.2-4. Existing Key Observation Point 3

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 25 miles south of Bombay Beach; therefore, it would not be visible from the location of the proposed projects.

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.

Because of the nature of the existing agricultural land uses and few residences, limited light is generated from within the project area. The majority of the light and glare in the project area 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. When light is not sufficiently screened and spills over into areas outside of a particular development area the effect is called "light trespassing."

3.2.2 Regulatory Setting

This section identifies and summarizes state and local 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 proposed 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.

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	The project would result in changes to the visual character of the project area, which is currently characterized as an agricultural landscape. As described in Section 3.2.1, the project site does not contain high levels of visual character or quality; therefore, the project would not result in a significant deterioration in the visual character of the project site or project 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 within an agricultural portion of the County and generally avoids both desert and mountain landscapes.

Source: County of Imperial 2016

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.

3.2.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to aesthetic and visual 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 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

This visual impact analysis is based on field observations conducted in March 2021, as well as a review of maps and aerial photographs for the project area. A representative subset of photographed viewpoints was selected as KOPs, which collectively serve as the basis for this assessment. This selection was done in coordination with ORNI and the County. 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 four KOPs in relation to the project site are presented in Figure 3.2-1 above.

The site photos were used to generate a rendering of the existing conditions and a proposed visualization of the implemented project. The visual simulations, as provided below, 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.

Impact Analysis

Impact 3.2-1 Would the project have a substantial adverse effect on a scenic vista?

Scenic vistas are typically expansive views from elevated areas that may or may not be part of a designated scenic overlook or other area providing a static view of a landscape. During construction, the use of standard construction equipment including, but not limited to, trucks, cranes, and tractors would be required. The presence of this equipment within the project site during construction would alter views of the area from undeveloped and agricultural 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 as there are no designated scenic vistas in the project vicinity. According to the Imperial County General Plan, the closest scenic resource is the Salton Sea approximately 11 miles northwest of the project site (County of Imperial 2016).

Views from elevated areas near the project site could be considered scenic vistas given the expansiveness of the views and distance one can see under favorable conditions. However, as described further below for the view of the project from all KOPs, 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 and would not substantially obstruct existing views. Therefore, less than significant impacts to scenic vistas would occur.

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?

There are 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 25 miles south of Bombay Beach. Therefore, no impacts to scenic resources within any state scenic highways 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?

The existing visual character in views of the project (Figure 3.2-2 through Figure 3.2-5) would not be substantially altered based primarily on the proximity of viewpoints to the project site. 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 would be temporary (approximately 6-9 months) and would 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. The potential impacts on these KVs are discussed below.

KOP 1 – View from North Best Avenue. Viewpoint 1 shows the view from KOP 1 with the proposed project simulated (Figure 3.2-6). The solar arrays and the security fencing would be the most prominently visible portion of the project from this location. As conceptually shown in the simulation, the project would appear as a comparatively dark, horizontal bar across the majority of the view. The overall effect shown in Viewpoint 1 is the relatively small degree of contrast the project would have with its broader surroundings, which includes views of the Coyote Mountains and Fish Creek Mountains. Solar arrays would not substantially obscure the mountain skyline from this vantage point.

KOP 2 – View from North Best Avenue and Ward Road. Viewpoint 2 shows the view from KOP 2 with the proposed project simulated (Figure 3.2-7). The solar arrays and the security fencing would be the most prominently visible portion of the project from this location. With demolition of the abandoned residence and corral, the project's BESS and substation would also be visible from KOP 2 to the west. As conceptually shown in the simulation, the project would appear as a generally uniform dark line across the view. The overall effect shown in Viewpoint 2 is the relatively small degree of contrast the project would have with its broader surroundings, which include views of the Chocolate Mountains. The BESS, substation, and solar arrays would not substantially obscure the mountain skyline from this vantage point.

KOP 3 – View from north end of Del Rio Country Club and Golf Course. KOP 3 shows the view from KOP 3 with the proposed project simulated (Figure 3.2-8). The gen-tie structures 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, traveling from east to west approximately 1.75 miles. While appearing as new and highly visible features, the transmission structures would relate to the numerous lines visible throughout the landscape. They would also occupy a relatively narrow portion of the view to the north from KOP 3.

The substation for the proposed project has not yet been designed. However, the facility shown in KOP 3 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 3, 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.

KOP 4 – View from State Route 111 and Andre Road. Viewpoint 4 shows the view from KOP 4 with the proposed project simulated (Figure 3.2-9). The gen-tie structures 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 southern portion of the view, traveling from east to west approximately 0.5 mile. While appearing as new and highly visible features, the transmission structures would relate to the numerous lines visible throughout the landscape. They would also occupy a relatively narrow portion of the view to the south from KOP 4.

As simulated, views of the substation and BESS would be visible in the distance from KOP 4. These structures would relate to the nearby industrial features in the landscape, including the nearby pipelines. The solar arrays would appear as a comparatively dark, horizontal bar across the remainder of the view. No project component would substantially obscure or appear above the mountain skyline from this vantage point.

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Figure 3.2-6. Proposed Key Observation Point 1

Figure 3.2-7. Proposed Key Observation Point 2

Figure 3.2-8. Proposed Key Observation Point 3

Figure 3.2-9. Proposed Key Observation Point 4

Conclusion

The views from KOPs 1 and 2 show the project's solar arrays and the security fencing most prominently, which would appear as a comparatively dark, horizontal bar across the view. The overall effect of the project from these KOPs is relatively small degree of contrast the project would have with its broader surroundings and a small interruption of views of the surrounding mountains.

In the view from KOPs 3 and 4, new transmission structures that would be part of the project's interconnection would appear large in scale; however, the structures would be comparable in size and appearance to other structures visible throughout the surrounding landscape, including multiple existing transmission lines. 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, and the City of Brawley Wastewater Treatment Plant. These effects would be less than significant.

Mitigation Measure(s)

No mitigation measures are required.

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?

The project would not include any source of nighttime lighting and therefore would not be a source of substantial light in the area outside of the project site. If constructed, lighting would be provided on the microwave tower. A glare hazard analysis was also prepared for the project (Appendix B of this EIR). It concluded that sensitive viewers near the project, including residences, a nearby golf course, major roadways, and approach slopes associated with the Brawley Municipal Airport, would not experience glare effects from the project. These effects would be less than significant.

Mitigation Measure(s)

No mitigation measures are required.

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 proposed project, the proposed project will be decommissioned and dismantled. No grading or significant landform 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, nearby residences, or flights 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 proposed project would not result in residual significant unmitigable impacts to the visual character of the project site or add substantial amounts of light and glare.

3.3 Agricultural Resources

This section provides an overview of existing agricultural resources within the project site and identifies applicable federal, state, and local policies related to the conservation of agricultural lands. This includes a summary of the production outputs, soil resources, and adjacent operations potentially affected by the project. The impact assessment in Section 3.3.3 provides an evaluation of potential adverse effects on agricultural resources based on criteria derived from the CEQA Guidelines in conjunction with actions proposed in Chapter 2, Project Description. Section 3.3.4 provides a discussion of residual impacts, if any.

No forestry resources are present within the project site and, therefore, this section focuses on issues related to agricultural resources.

3.3.1 Existing Conditions

Agriculture has been the single most important economic activity of Imperial County throughout the 1900s, and is expected to play a major economic role in the foreseeable future. The gross annual value of agricultural production in the County has hovered around $1 billion for the last several years, making it the County's largest source of income and employment.

Imperial County agriculture is a major producer and supplier of high quality plant and animal foods and non-food products. In 2019, agriculture contributed a total of $2.01 billion to the county economy. Vegetable and melon crops were the single largest production category by dollar value ($799 million). Livestock represented the second largest category ($522 million) and consisted mostly of feedlot cattle ($449 million). Field crops ranked third with $498 million (Imperial County Agricultural Commissioner 2019).

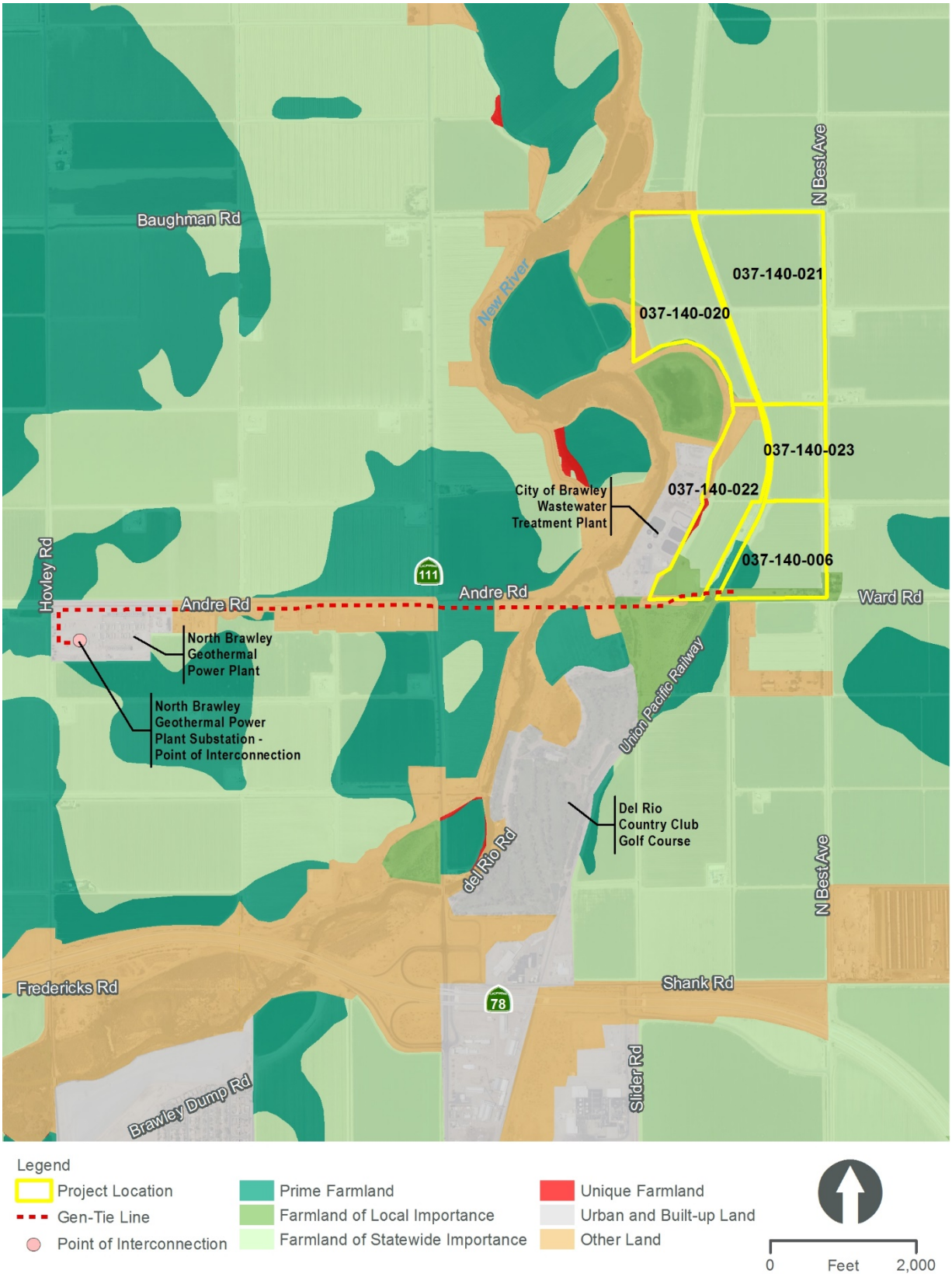
Important Farmland

According to the California Department of Conservation's (DOC) California Important Farmland Finder and as shown on Figure 3.3-1, the majority of the project site is designated as Farmland of Statewide Importance (205 acres), with a pocket of Prime Farmland (4.4 acres) and Farmland of Local Importance (12 acres) located in the southern portion of the project site (DOC 2021). Approximately 1 acre of Unique Farmland occurs along the western boundary of the project site.

Williamson Act Contract Land

According to the 2016/2017 Imperial County Williamson Act Map produced by the DOC, the project site is not located on Williamson Act contracted land (DOC 2016).

Figure 3.3-1. Important Farmlands



3.3.2 Regulatory Setting

This section identifies and summarizes state and local laws, policies, and regulations that are applicable to the project.

State

California Land Conservation Act

The Williamson Act (California Land Conservation Act, California Government Code, Section 51200 et seq.) 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 land in agricultural use to be placed under contract (agricultural preserve) between a local government and a landowner.

Under the provisions of the Williamson Act (California Land Conservation Act 1965, Section 51200), landowners contract with the County to maintain agricultural or open space use of their lands in return for reduced property tax assessment. The contract is self-renewing and the landowner may notify the County at any time of intent to withdraw the land from its preserve status. Withdrawal involves a 10-year period of tax adjustment to full market value before protected open space can be converted to urban uses. Consequently, land under a Williamson Act Contract can be in either a renewal status or a nonrenewable status. Lands with a nonrenewable status indicate the farmer has withdrawn from the Williamson Act Contract and is waiting for a period of tax adjustment for the land to reach its full market value. Nonrenewable and cancellation lands are candidates for potential urbanization within a period of 10 years.

The requirements necessary for cancellation of land conservation contracts are outlined in Government Code Section 51282. The County must document the justification for the cancellation through a set of findings. Unless the land is covered by a farmland security zone contract, the Williamson Act requires that local agencies make both the Consistency with the Williamson Act and Public Interest findings.

On February 23, 2010, the Imperial County Board of Supervisors voted to not accept any new Williamson Act contracts and not to renew existing contracts because of the elimination of the subvention funding from the state budget. The County reaffirmed this decision in a vote on October 12, 2010, and notices of nonrenewal were sent to landowners with Williamson Act contracts following that vote. The applicable deadlines for challenging the County's actions have expired, and, therefore, all Williamson Act contracts in Imperial County terminated on or before December 31, 2018.

California Farmland Mapping and Monitoring Program

The California DOC, under the Division of Land Resource Protection, has set up the Farmland Mapping and Monitoring Program (FMMP), which monitors the conversion of the state's farmland to and from agricultural use. The map series identifies eight classifications, as defined below, and uses a minimum mapping unit size of 10 acres.

- Prime Farmland has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

- Farmland of Statewide Importance is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- Unique Farmland consists of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.
- Farmland of Local Importance is land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- Grazing Land is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.
- Urban and Built-up Land is occupied by structures with a building density of at least one unit to 1.5 acre, or approximately six structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, prisons, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.
- Water is defined as perennial water bodies with an extent of at least 40 acres.
- Other Land is land not included in any other mapping category. Common examples include low density rural developments, vegetative and riparian areas not suitable for livestock grazing, confined animal agriculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land. More detailed data on these uses is available in counties containing the Rural Land Use Mapping categories.

The program also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The program maintains an inventory of state agricultural land and updates its "Important Farmland Series Maps" every 2 years. Table 3.3-1 provides a summary of agricultural land within Imperial County converted to non-agricultural uses during the time frame from 2016 to 2018.

Table 3.3-1. Imperial County Change in Agricultural Land Use Summary (2016 to 2018)

	Total Acreage Inventoried		2016 to 2018 Acreage Changes			
Land Use Category	2016	2018	Acres Lost (-)	Gained (+)	Total Acreage Changed	Net Acreage Changed
Prime Farmland	190,206	189,163	1,699	656	2,355	-1,043
Farmland of Statewide Importance	297,272	291,596	6,330	654	6,984	-5,676
Unique Farmland	2,071	1,905	190	24	214	-166
Farmland of Local Importance	38,923	39,711	1,587	2,375	3,962	788
Important Farmland Subtotal	***528,472***	***522,375***	***9,806***	***3,709***	***13,515***	***-6,097***
Grazing Land	0	0	0	0	0	0
Agricultural Land Subtotal	528,472	522,375	9,806	3,709	13,515	-6,097

Table 3.3-1. Imperial County Change in Agricultural Land Use Summary (2016 to 2018)

Land Use Category	Total Acreage Inventoried		2016 to 2018 Acreage Changes			
	2016	2018	Acres Lost (-)	Gained (+)	Total Acreage Changed	Net Acreage Changed
Urban and Built-Up Land	37,412	41,764	301	4,653	4,954	4,352
Other Land	461,891	463,488	712	2,309	3,021	1,597
Water Area	749	897	125	273	398	148
Total Area Inventoried	**1,028,524**	**1,028,524**	**10,944**	**10,944**	**21,888**	**0**

Source: DOC 2018

Local

County of Imperial General Plan

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).

The County's Agricultural Element identifies several Implementation Programs and Policies for the preservation of agricultural resources. The Agricultural Element recognizes that the County can and should take additional steps to provide further protection for agricultural operations and at the same time provide for logical, organized growth of urban areas. The County must be specific and consistent about which lands will be maintained for the production of food and fiber and for support of the County's economic base. The County's strategy and overall framework for maintaining agriculture includes the following policy directed at the preservation of Important Farmland:

> The overall economy of the County is expected to be dependent upon the agricultural industry for the foreseeable future. As such, all agricultural land in the County is considered as Important Farmland, as defined by federal and state agencies, and should be reserved for agricultural uses. Agricultural land may be converted to non-agricultural uses only where a clear and immediate need can be demonstrated, such as requirements for urban housing, commercial facilities, or employment opportunities. All existing agricultural land will be preserved for irrigation agriculture, livestock production, aquaculture, and other agriculture-related uses

> except for non-agricultural uses identified in this General Plan or in previously adopted City General Plans.

The following program is provided in the Agricultural Element:

> No agricultural land designated except as provided in Exhibit C [of the Agricultural Element] shall be removed from the Agriculture category except where needed for use by a public agency, for geothermal purposes, where a mapping error may have occurred, or where a clear long-term economic benefit to the County can be demonstrated through the planning and environmental review process. The Board (or Planning Commission) shall be required to prepare and make specific findings and circulate same for 60 days (30 days for parcels considered under Exhibit C of this [Agricultural] element) before granting final approval of any proposal, which removes land from the Agriculture category.

Also, the following policy addresses Development Patterns and Locations on Agricultural Land:

> "Leapfrogging" or "checkerboard" patterns of development have intensified recently and result in significant impacts on the efficient and economic production of adjacent agricultural land. It is a policy of the County that leapfrogging will not be allowed in the future. All new non-agricultural development will be confined to areas identified in this plan for such purposes or in Cities' adopted Spheres of Influence, where new development must adjoin existing urban uses. Non-agricultural residential, commercial, or industrial uses will only be permitted if they adjoin at least one side of an existing urban use, and only if they do not significantly impact the ability to economically and conveniently farm adjacent agricultural land.

Agricultural Element Programs that address "leapfrogging" or "checkerboard" development include:

> All non-agricultural uses in any land use category shall be analyzed during the subdivision, zoning, and environmental impact review process for their potential impact on the movement of agricultural equipment and products on roads located in the Agriculture category, and for other existing agricultural conditions which might impact the projects, such as noise, dust, or odors.
>
> The Planning and Development Services Department shall review all proposed development projects to assure that any new residential or non-agricultural commercial uses located on agriculturally zoned land, except land designated as a Specific Plan Area, be adjoined on at least one entire property line to an area of existing urban uses. Developments that do not meet these criteria should not be approved.

Table 3.3-2 provides a General Plan goal and policy consistency evaluation for the project.

Table 3.3-2. Project Consistency with Applicable General Plan Agricultural Policies

General Plan Policies	Consistency with General Plan	Analysis
Goal 1. All Important Farmland, including the categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance, as defined by federal and state agencies, should be reserved for agricultural uses.	Consistent	The project would temporarily convert land designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to non-agricultural uses, however, as part of the project, a reclamation plan when the project is decommissioned at the end of its life spans will be utilized. The reclamation plan includes the removal, recycling, and/or disposal of all solar arrays, inverters, battery energy storage system, transformers and other structures on the site, as well as restoration of the site to its pre-project

Table 3.3-2. Project Consistency with Applicable General Plan Agricultural Policies

General Plan Policies	Consistency with General Plan	Analysis
		condition. Therefore, the proposed project would not permanently convert Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to non-agricultural uses.
Goal 2. Adopt policies that prohibit "leapfrogging" or "checkerboard" patterns of nonagricultural development in agricultural areas and confine future urbanization to adopted Sphere of Influence area.	Consistent	The project site is designated for agriculture land use in the County General Plan. The project would include development of a solar facility and associated infrastructure adjacent to productive agricultural lands to the north and east of the project site; however, the project is located adjacent to the City of Brawley Wastewater Treatment Plant along the western edge of the project site. The Union Pacific Railway transects the project site. Additionally, this development would not include a residential component that would induce urbanization adjacent to the projects. Furthermore, with the approval of a General Plan Amendment, Zone Change, and CUP, the project would be consistent with the County's Land Use Ordinance. Consistency with the Land Use Ordinance implies consistency with the General Plan land use designation.
Objective 2.1. Do not allow the placement of new non-agricultural land uses such that agricultural fields or parcels become isolated or more difficult to economically and conveniently farm.	Consistent	The project would include development of a solar facility adjacent to productive agricultural lands to the north and east of the project site; however, the project is located adjacent to the City of Brawley Wastewater Treatment Plant along the western edge of the project site. The Union Pacific Railway transects the project site. Neither construction nor operation of the solar facility would not make it difficult to economically or conveniently farm.
Objective 2.2. Encourage the infilling of development in urban areas as an alternative to expanding urban boundaries.	Consistent	The project involves the construction and operation of solar facility in a rural area. While the proposed project will introduce development in the area, it does not include residential uses that would, in turn, create a demand for other uses such as commercial, employment centers, and supporting services.
Objective 2.3. Maintain agricultural lands in parcel size configurations that help assure that viable farming units are retained.	Consistent	The project would temporarily convert agricultural land to non-agricultural uses. However, the project would not be subdivided into smaller parcels. A reclamation plan will be prepared for the project site, which when implemented, would return the site to pre-project conditions after the solar uses are discontinued.
Objective 2.4. Discourage the parcelization of large holdings.	Consistent	See response to Objective 2.3 above.
Objective 2.6. Discourage the development of new residential or other non-agricultural areas outside of city "sphere of influence" unless designated for non-agricultural use in the County	Consistent	Upon approval of a CUP and zone change into the RE Overlay Zone designation, the proposed project would be an allowable use within an applicable agricultural zone, and the existing zoning of the project site would be consistent

Table 3.3-2. Project Consistency with Applicable General Plan Agricultural Policies

General Plan Policies	Consistency with General Plan	Analysis
General Plan, or for necessary public facilities.		with the existing General Plan land use designation.
Goal 3. Limit the introduction of conflicting uses into farming areas, including residential development of existing parcels which may create the potential for conflict with continued agricultural use of adjacent property.	Consistent	Upon approval of a CUP and zone change into the RE Overlay Zone designation, the proposed project would be an allowable use within an applicable agricultural zone. Additionally, the project does not include the development of housing.
Objective 3.2. Enforce the provisions of the Imperial County Right-to-Farm Ordinance (No. 1031).	Consistent	The Imperial County Right-to-Farm Ordinance would be enforced. With mitigation measures proposed in other resource sections (e.g., air quality, noise, etc.), project-related activities would not adversely affect adjacent agricultural operations. The proposed project will be required to comply with ICAPCD's rules and regulations to control emissions or hazardous air pollutants, including, but not limited to, Regulation VIII and Rule 407. Regulation VIII sets forth rules regarding the control of fugitive dust, including fugitive dust from construction activities. Regulation VIII 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. 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.
Objective 3.3. Enforce the provisions of the State nuisance law (California Code Sub-Section 3482).	Consistent	The provisions of the State nuisance law would be incorporated into the project. As discussed below, there is the potential that weeds or other pests may occur within the solar fields if these areas are not properly maintained and managed to control weeds and pests. Mitigation Measure AG-2 requires the project applicant to develop a Pest Management Plan prior to the issuance of a grading permit or building permit (whichever occurs first).

Source: County of Imperial General Plan 2015
Notes:
CUP = conditional use permit; RE = renewable energy

County of Imperial "Right to Farm" Ordinance

On August 7, 1990, the County Board of Supervisors approved the "Right-to-Farm" Ordinance, which permits operation of properly conducted agricultural operations within Imperial County after recognizing the potential threats to agricultural productivity posed by increased nonagricultural land

uses throughout the County. The ordinance is intended to reduce the loss to the County of its agricultural resources and promote a good neighbor policy by advising purchasers and users of adjacent properties about the potential problems and inconveniences associated with agricultural operations. The ordinance also establishes a "County Agricultural Grievance Committee" to settle disputes between agriculturalists and adjacent property owners.

3.3.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to agricultural 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 agricultural resources are considered significant if any of the following occur:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use
- Conflict with existing zoning for agricultural use, or a Williamson Act contract
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use

Methodology

This analysis evaluates the potential for the project, as described in Chapter 2, Project Description, to adversely impact agricultural resources within the project site based on the applied significance criteria as identified above. The analysis prepared for this EIR relied on Important Farmland and Williamson Act maps for Imperial County produced by the California DOC's Division of Land Resource Protection. These sources were used to determine the agricultural significance of the land in the project site. Per the County of Imperial General Plan, Farmland of Local Importance is also considered an important farmland.

Additionally, potential conflicts with existing agricultural zoning or other changes resulting from the implementation of the project, which could indirectly remove Important Farmland from agricultural production or reduce agricultural productivity were considered. Sources used in this evaluation included, but were not limited to, the Imperial County General Plan and zoning ordinance. The conceptual site plan for the project (Chapter 2, Figure 2-3) was also used to evaluate potential impacts.

Impact Analysis

Impact 3.3-1 Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use?

Implementation of the project would result in the temporary conversion of approximately 227 acres of land currently under or available for agricultural production to non-agricultural uses. Approximately 4.4 acres of the project site is classified as Prime Farmland, 205 acres as Farmland of Statewide Importance, and 1 acre as Unique Farmland. The loss of agricultural land designed Prime Farmland,

Farmland of Statewide Importance, and Unique Farmland is typically considered a significant impact under CEQA. Therefore, their conversion to non-agricultural use, albeit temporary, is considered a significant impact. Implementation of Mitigation Measures AG-1a and AG-1b would reduce this impact to a level less than significant.

Mitigation Measure(s)

AG-1a **Payment of Agricultural and Other Benefit Fees.** One of the following options included below is to be implemented prior to the issuance of a grading permit or building permit for the project:

Mitigation for Non-Prime Farmland

Option 1: *Provide Agricultural Conservation Easement(s).* The Permittee shall procure Agricultural Conservation Easements on a "1 on 1" basis on land of equal size, of equal quality farmland, outside the path of development. The conservation easement shall meet DOC regulations and shall be recorded prior to issuance of any grading or building permits; or

Option 2: *Pay Agricultural In-Lieu Mitigation Fee.* The Permittee shall pay an "Agricultural In-Lieu Mitigation Fee" in the amount of 20 percent of the fair market value per acre for the total acres of the proposed site based on five comparable sales of land used for agricultural purposes as of the effective date of the permit, including program costs on a cost recovery/time and material basis. The Agricultural In-Lieu Mitigation Fee, will be placed in a trust account administered by the Imperial County Agricultural Commissioner's office and will be used for such purposes as the acquisition, stewardship, preservation and enhancement of agricultural lands within Imperial County; or,

Option 3: *Public Benefit Agreement.* The Permittee and County voluntarily enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that is 1) consistent with Board Resolution 2012-005; 2) the Agricultural Benefit Fee must be held by the County in a restricted account to be used by the County only for such purposes as the stewardship, preservation and enhancement of agricultural lands within Imperial County and to implement the goals and objectives of the Agricultural Benefit program, as specified in the Development Agreement, including addressing the mitigation of agricultural job loss on the local economy.

Mitigation for Prime Farmland

Option 1: *Provide Agricultural Conservation Easement(s).* The Permittee shall procure Agricultural Conservation Easements on a "2 on 1" basis on land of equal size, of equal quality farmland, outside the path of development. The conservation easement shall meet DOC regulations and shall be recorded prior to issuance of any grading or building permits; or

Option 2: *Pay Agricultural In-Lieu Mitigation Fee.* The Permittee shall pay an "Agricultural In-Lieu Mitigation Fee" in the amount of 30 percent of the fair market value per acre for the total acres of the proposed site based on five comparable sales of land

used for agricultural purposes as of the effective date of the permit, including program costs on a cost recovery/time and material basis. The Agricultural In-Lieu Mitigation Fee, will be placed in a trust account administered by the Imperial County Agricultural Commissioner's office and will be used for such purposes as the acquisition, stewardship, preservation and enhancement of agricultural lands within Imperial County; or,

Option 3: *Public Benefit Agreement.* The Permittee and County voluntarily enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that is 1) consistent with Board Resolution 2012-005; 2) the Agricultural Benefit Fee must be held by the County in a restricted account to be used by the County only for such purposes as the stewardship, preservation and enhancement of agricultural lands within Imperial County and to implement the goals and objectives of the Agricultural Benefit program, as specified in the Development Agreement, including addressing the mitigation of agricultural job loss on the local economy; the Project and other recipients of the Project's Agricultural Benefit Fee funds; or emphasis on creation of jobs in the agricultural sector of the local economy for the purpose of off-setting jobs displaced by this Project.

Option 4: *Avoid Prime Farmland.* The Permittee must revise their CUP Application/Site Plan to avoid Prime Farmland.

AG-1b **Site Reclamation Plan.** The DOC has clarified the goal of a reclamation and decommissioning plan: the land must be restored to land which can be farmed. In addition to Mitigation Measure AG-1a for Prime Farmland and Non-Prime Farmland, the Applicant shall submit to Imperial County, a Reclamation Plan prior to issuance of a grading permit. The Reclamation Plan shall document the procedures by which the project site will be returned to its current agricultural condition. Permittee shall also provide financial assurance/bonding in the amount equal to a cost estimate prepared by a California-licensed general contractor or civil engineer for implementation of the Reclamation Plan in the even Permittee fails to perform the Reclamation Plan.

Significance after Mitigation

With the implementation of Mitigation Measure AG-1a, the project applicant would be required to minimize the impact associated with the permanent loss of valuable farmlands through either provision of an agricultural conservation easement, payment into the County agricultural fee program, or entering into a public benefit agreement. Mitigation Measure AG-1b will ensure that the project applicant adheres to the terms of the agricultural reclamation plan prepared for the project site, which would address the temporary conversion impact. This mitigation measure would reduce this impact to a less than significant level.

Impact 3.3-2 Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Williamson Act. The project site is not located on Williamson Act contracted land (DOC 2016). Therefore, the project would not conflict with a Williamson Act contract and no impact would occur.

Agricultural Zoning. Pursuant to the County General Plan, the project site is located on land designated for agricultural uses. The project would be constructed on land currently zoned A-2-G (General Agricultural with a Geothermal Overlay). Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone subject to approval of a CUP from Imperial County: solar energy electrical generator, battery storage facility, electrical substations, communication towers, and facilities for the transmission of electrical energy.

Upon approval of a CUP and zone change into the RE Overlay Zone designation, the project's uses would be consistent with the Imperial County Land Use Ordinance and thus is also consistent with the General Plan land use designation of the site. Additionally, the operation of the solar energy facility is not expected to inhibit or adversely affect adjacent agricultural operations through the placement of sensitive land uses or generation of excessive dust or shading. Based on these considerations, the impact is considered less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.3-3 Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

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 private development as well as government actions and programs. A summary of the relevant Agricultural goals and objectives and the project's consistency with applicable goals and objectives is summarized in Table 3.3-2. As provided, the project is generally consistent with certain Agricultural Element Goals and Objectives of the County General Plan, but mitigation is required for the project.

Per County policy, agricultural land may be converted to non-agricultural uses only where a clear and immediate need can be demonstrated, such as requirements for urban housing, commercial facilities, or employment opportunities. Further, no agricultural land designated exempt shall be removed from the agriculture category except where needed for use by a public agency, for geothermal purposes, where a mapping error may have occurred, or where a clear long-term economic benefit to the County can be demonstrated through the planning and environmental review process.

As discussed under Impact 3.3-1, although the project would convert lands currently under agricultural production, the project applicant is proposing agriculture as the end use and will prepare a site-specific Reclamation Plan to minimize impacts related to short- and long-term conversion of farmland to non-agricultural use. The reclamation plan includes the removal, recycling, and/or disposal of all solar arrays, inverters, transformers and other structures on the site, as well as restoration of the site to its pre-project condition. The County is responsible for approving the reclamation plan for each project and confirming that financial assurances for the project is in conformance with Imperial County ordinances prior to the issuance of any building permits. This shall be made a condition of approval and included in the CUP. Additionally, the County is requiring Mitigation Measure AG-1b to ensure that post-restoration of the project facilitates result in no net reduction in Prime Farmland or Farmland of Statewide Importance.

The project would not directly impact the movement of agricultural equipment on roads located within the agriculture category and access to existing agriculture-serving roads would not be precluded or

hindered by the project. Project construction would include the renovation of existing dirt roads to all-weather surfaces (to meet the County standards) from N Best Avenue to the City of Brawley wastewater treatment plant. However, the proposed renovation would not otherwise affect other agricultural operations in the area. With mitigation measures proposed in other resource sections (e.g. air quality, noise, etc.), project-related activities would not adversely affect adjacent agricultural operations. The proposed project will be required to comply with ICAPCD's rules and regulations to control emissions or hazardous air pollutants, including, but not limited to, Regulation VIII and Rule 407. Regulation VIII sets forth rules regarding the control of fugitive dust, including fugitive dust from construction activities. Regulation VIII 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. 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. Further, the provisions of the Imperial County Right-to-Farm Ordinance (No. 1031) and the State nuisance law (California Code Sub-Section 3482) would continue to be enforced.

With the implementation of the project, it is possible that the physical and chemical makeup of the soil materials within the upper soil horizon may change. For example, improper soil stockpiling and management of the stockpiles could result in increased decomposition of soil organic materials, increased leaching of plant available nitrogen, and depletion of soil biota communities (e.g., Rhizobium or Frankia). Any reductions in agricultural productivity could significantly limit the types of crops (e.g., deeper rooting crops, orchards, etc.) that may be grown within the project site in the future. However, implementation of Mitigation Measure AG-1b would require the project applicant or its successor in interest for implementing a reclamation plan when the project is decommissioned at the end of its lifespan. The reclamation plan includes restoration of the site to its pre-project condition. Implementation of Mitigation Measure AG-1b would reduce this impact to a level less than significant.

Additionally, there is the potential that weeds or other pests may occur within the solar field if the area is not properly maintained and managed to control weeds and pests. This is considered a significant impact. Implementation of Mitigation Measure AG-2 would reduce this impact to a level less than significant.

Mitigation Measure(s)

AG-2 **Pest Management Plan.** Prior to the issuance of a grading permit or building permit (whichever occurs first), a Pest Management Plan shall be developed by the project applicant and approved by the County of Imperial Agricultural Commissioner. The project applicant shall maintain a Pest Management Plan until reclamation is complete. The plan shall provide the following:

1. Monitoring, preventative, and management strategies for weed and pest control during construction activities at any portion of the project (e.g., transmission line);
2. Control and management of weeds and pests in areas temporarily disturbed during construction where native seed will aid in site revegetation as follows:
    - 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 is recommended. All treatments must be performed by a qualified applicator or a licensed pest control business;

- All treatments must be performed by a qualified applicator or a licensed pest control operator;
- "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, bio control, cultural control, or chemical treatments;
- Use of "permanent" soil sterilants to control weeds or other pests is prohibited because this would interfere with reclamation;
- Notify the Agricultural Commissioner's office immediately regarding any suspected exotic/invasive pest species as defined by the California Department of Food Agriculture and the U.S. Department of Agriculture. Request a sample be taken by the Agricultural Commissioner's Office of a suspected invasive species. Eradication of exotic pests shall be done under the direction of the Agricultural Commissioner's Office and/or California Department of Food and Agriculture;
- 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 all project employees that handle pest control issues are appropriately trained and certified, all required records are maintained and made available for inspection, and all required 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;
- 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.

3. A long-term strategy for weed and pest control and management during the operation of the proposed projects. Such strategies may include, but are not limited to:

    - Use of specific types of herbicides and pesticides on a scheduled basis.

4. Maintenance and management of project site conditions to reduce the potential for a significant increase in pest-related nuisance conditions on surrounding agricultural lands.
5. The project shall reimburse the Agricultural Commissioner's office for the actual cost of investigations, inspections, or other required non-routine responses to the site that are not funded by other sources.

Significance after Mitigation

With implementation of Mitigation Measure AG-1b, the project applicant would be required to adhere to the terms of the comprehensive reclamation plan that would restore the project site to preexisting (pre-project) conditions following decommissioning of the project (after their use for solar generation activities). In addition, the proposed project would be required to implement a weed and pest management control plan per Mitigation Measure AG-2. Compliance with these measures would reduce this impact to a level less than significant.

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. In any land restoration project, it is necessary to minimize disruption to topsoil or stockpiled topsoil for later use during restoration following project decommissioning. With the implementation of the project, it is possible that the physical and chemical makeup of the soil materials within the upper soil horizon may change during construction and associated stockpiling operations. Improper soil stockpiling and management of the stockpiles could result in increased decomposition of soil organic materials, increased leaching of plant-available nitrogen, and depletion of soil biota communities (e.g., Rhizobium or Frankia). Each of these circumstances could have an adverse effect on the future productivity of the restored soils. Any reductions in agricultural productivity could significantly limit the types of crops (e.g., deeper rooting crops, orchards, etc.) that may be grown within the project site in the future. With implementation of Mitigation Measure AG-1b, the project applicant would be required to adhere to the terms of the comprehensive reclamation plan that would restore the project site to preexisting (pre-project) conditions following decommissioning of the project (after their use for solar generation activities). Implementation of Mitigation Measure AG-1b would reduce this impact to a level less than significant.

Residual

With mitigation, issues related to the conversion of Important Farmland to non-agricultural use would be mitigated and reduced to a less than significant level. Operation of the project, subject to the approval of a CUP, would generally be consistent with applicable federal, state, regional, and local plans and policies. Following the proposed use (e.g., solar facility), the project would be decommissioned and the project site would be restored to pre-project conditions. Based on these circumstances, the project would not result in any residual significant and unmitigable impacts on agricultural resources.

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3.4 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 ICAPCD's Air Quality Handbook in conjunction with actions proposed in Chapter 2, Project Description, of this EIR. Information contained in this section is summarized from the *Air Quality, Energy, and Greenhouse Gas Emissions Impact – Brawley Solar Energy Facility Project* prepared by Vista Environmental. This report is included in Appendix C of this EIR.

3.4.1 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 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.

The climate of Imperial County is governed by the large-scale sinking and warming of air in the semi-permanent high-pressure zone of the eastern Pacific Ocean. The high-pressure ridge blocks out most mid-latitude storms, except in the winter, when it is weakest and located farthest south. The coastal mountains prevent the intrusion of any cool, damp air found in California coastal areas. Because of the barrier and weakened storms, Imperial County experiences clear skies, extremely hot summers, mild winters, and little rainfall. The sun shines, on the average, more in Imperial County than anywhere else in the United States.

Winters are mild and dry with daily average temperatures ranging between 65- and 75- degrees Fahrenheit (°F). During winter months it is not uncommon to record maximum temperatures of up to 80 °F. Summers are extremely hot with daily average temperatures ranging between 104 and 115 °F. It is not uncommon to record maximum temperatures of 120 °F during summer months.

The flat terrain of the valley and the strong temperature differentials created by intense solar heating, produce moderate winds and deep thermal convection. The combination of subsiding air, protective mountains, and distance from the ocean all combine to severely limit precipitation. Rainfall is highly variable, with precipitation from a single heavy storm able to exceed the entire annual total during a later drought condition. The average annual rainfall is just over three 3 inches, with most of it occurring in late summer or mid-winter.

Humidity is low throughout the year, ranging from an average of 28 percent in summer to 52 percent in winter. The large daily oscillation of temperature produces a corresponding large variation in the relative humidity. Nocturnal humidity rises to 50 to 60 percent but drops to about 10 percent during the day.

The wind in Imperial County follows two general patterns. Wind statistics indicate prevailing winds are from the west-northwest through southwest; a secondary flow maximum from the southeast is also evident. The prevailing winds from the west and northwest occur seasonally from fall through spring and are known to be from the Los Angeles area. Occasionally, Imperial County experiences periods of extremely high wind speeds. Wind speeds can exceed 31 miles per hour (mph), and this occurs

most frequently during the months of April and May. However, speeds of less than 6.8 mph account for more than one-half of the observed wind measurements.

Major Air Pollutants

Criteria Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone, coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in Table 3.4-1.

Table 3.4-1. Criteria Air Pollutants - Summary of Common Sources and Effects

Pollutant	Major Manmade Sources	Human Health and Welfare Effects
CO	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
NO_2	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere.
O_3	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (N_2O) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
PM_{10} and $PM_{2.5}$	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze)
SO_2	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, and locomotives.	Respiratory irritant. Aggravates lung and heart problems. Can damage crops and natural vegetation. Impairs visibility.

Source: California Air Pollution Control Officers Association (CAPCOA) 2021

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TAC) are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists

of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). DPM is a subset of $PM_{2.5}$ because the size of diesel particles are typically 2.5 microns and smaller. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources (Appendix C of this EIR).

Attainment Status

The U.S. Environmental Protection Agency (EPA) and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The National Ambient Air Quality Standards (NAAQS) (other than ozone [O_3], PM_{10} and $PM_{2.5}$ and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards (CAAQS) are not to be exceeded during a three-year period.

The attainment status for the portion of the SSAB encompassing the project site is shown in Table 3.4-2. As shown, the Imperial County portion of the SSAB is currently designated as nonattainment for O_3 and PM_{10} under State standards. Under federal standards, the Imperial County portion of the SSAB is in nonattainment for O_3, PM_{10}, and $PM_{2.5}$. The area is currently in attainment or unclassified status for CO, NO_2, and SO_2.

Table 3.4-2. Attainment Status of Criteria Pollutants in the Imperial County Portion of the Salton Sea Air Basin

Pollutant	State Designation	Federal Designation
O_3	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Nonattainment
$PM_{2.5}$	Attainment	Nonattainment
CO	Attainment	Unclassified/attainment
NO_2	Attainment	Unclassified/attainment
SO_2	Attainment	Unclassified/attainment

Source: Appendix C of this EIR

Local Ambient Air Quality

Ambient air quality at the project site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. CARB maintains more than 60 monitoring stations throughout California. The ICAPCD operates a network of monitoring stations throughout the County that continuously monitor ambient levels of criteria pollutants in compliance with federal monitoring regulations.

Since not all air monitoring stations measure all of the tracked pollutants, the data from the following monitoring stations, listed in the order of proximity to the project site, have been used: Brawley-220 Main Street Monitoring Station (Brawley Station), Westmorland Monitoring Station (Westmorland Station) and El Centro – 9th Street Monitoring Station (El Centro Station).

The Brawley Station is located approximately 2.9 miles south of the project site at 220 Main Street, the Westmorland Station is located approximately 6.4 miles west of the project site at 202 W First Street, and the El Centro Station is located approximately 15.7 miles south of the project site at 150 9th Street. PM_{10} and $PM_{2.5}$ were measured at the Brawley Station, ozone was measured at the Westmorland Station, and NO_2 was measured at the El Centro Station. It should be noted that due to the air monitoring stations' distances from the project site, recorded air pollution levels at the air monitoring stations reflect with varying degrees of accuracy local air quality conditions at the project site. Table 3.4-3 shows the most recent three years of monitoring data from CARB.

Table 3.4-3. Summary of Local Ambient Air Quality Data

	Year[1]		
Pollutant (Standard)	2017	2018	2019
Ozone: [1]			
Maximum 1-Hour Concentration (ppm)	0.078	0.086	0.071
Days > CAAQS (0.09 ppm)	0	0	0
Maximum 8-Hour Concentration (ppm)	0.067	0.068	0.060

Table 3.4-3. Summary of Local Ambient Air Quality Data

Pollutant (Standard)	Year[1]		
	2017	2018	2019
Days > NAAQS (0.070 ppm)	0	0	0
Days > CAAQs (0.070 ppm)	0	0	0
Nitrogen Dioxide: [2]			
Maximum 1-Hour Concentration (ppb)	48.8	34.1	41.4
Days > NAAQS (100 ppb)	0	0	0
Days > CAAQS (180 ppb)	0	0	0
Inhalable Particulates (PM10) :[3]			
Maximum 24-Hour National Measurement (ug/m^3)	449.8	407.0	324.4
Days > NAAQS (150 ug/m^3)	9	13	2
Days > CAAQS (50 ug/m^3)	58	106	53
Annual Arithmetic Mean (AAM) (ug/m^3)	45.4	52.2	35.8
Annual > NAAQS (50 ug/m^3)	No	**Yes**	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):[3]			
Maximum 24-Hour National Measurement (ug/m^3)	46.1	55.1	28.9
Days > NAAQS (35 ug/m^3)	**1**	**2**	0
Annual Arithmetic Mean (AAM) (ug/m^3)	9.4	10.4	8.3
Annual > NAAQS and CAAQS (12 ug/m^3)	No	No	No

Source: Appendix C of this EIR

Notes:

*Exceedances are listed in **bold**. CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.*

[1] *Data obtained from the Westmorland Station.*

[2] *Data obtained from the El Centro Station.*

[3] *Data obtained from the Brawley Station.*

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 nearest sensitive receptors to the project site including the following:

- Single-family homes approximately 40 feet to the north side of the project site, located near the northwest corner of the project site.
- Single-family residence on the east side of N Best Avenue, located near the northeast corner of the project site
- Single-family residence on the east side of N Best Avenue, located across the proposed project's primary access road
- Two single-family residences located at the northeast corner of the intersection of N Best Avenue and Ward Road
- Single-family residence (with a horse boarding/training facility) on the west side of N Best Avenue, located south of the project site)

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

Clean Air Act

The 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 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, CO, NO_2, SO_2, Pb, and PM (Including both PM_{10}, and $PM_{2.5}$) are the six criteria air pollutants. Ozone is a secondary pollutant, nitrogen oxides (NO_x) and volatile organic compounds (VOC) 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 U.S 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 3.4-4.

State

California Clean Air Act

The California Clean Air Act (CCAA) was adopted by CARB in 1988. The CCAA is responsible for meeting the state requirements of the Federal CAA and for establishing the 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 3.4-4, 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 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 3.4-4. 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	

Table 3.4-4. Ambient Air Quality Standards

Air Pollutant	Averaging Time	California Standard	National Standard
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: CARB 2016

Notes:

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; $\mu g/m^3$ – 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 of the project include DPM and airborne asbestos.

In August 1998, CARB identified DPM emissions from diesel-fueled engines as a TAC. In September 2000, CARB 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.).

Tanner Air Toxics Act & Air Toxics "Hot Spots" Information and Assessment Act

CARB's Statewide comprehensive air toxics program was established in 1983 with AB 1807, the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

CARB also administers the state's mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment (HRA) and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In

September 1992, the "Hot Spots" Act was amended by SB 1731, which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

Regional

Imperial County Air Pollution Control District

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. 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.

- **2009 Imperial County Plan for PM_{10}.** 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 $PM_{2.5}$ 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).
- **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 2017a). The plan includes control measures which are an integral part of how the ICAPCD currently controls the ROG and NO_X emissions within the O_3 nonattainment areas. The overall strategy includes programs and control measures which represent the implementation of Reasonable Available Control Technology (40 CFR 51.912) and the assurance that stationary sources maintain a net decrease in emissions.
- **2018 Imperial County Plan for PM_{10}**. Imperial Valley is classified as nonattainment for federal and state PM_{10} standards. The 2018 SIP maintained previously adopted fugitive dust control measures (Regulation VIII) that were approved in the Imperial County portion of the California SIP in 2013 (see above) (ICAPCD 2018a).
- **2018 Imperial County Plan for $PM_{2.5}$.** U.S. EPA designated Imperial County as nonattainment for the 2018 24-hr $PM_{2.5}$ standard. The 2018 $PM_{2.5}$ SIP concluded that the majority of the $PM_{2.5}$ emissions resulted from transport in nearby Mexico. Specifically, the SIP demonstrates attainment of the 2006 $PM_{2.5}$ NAAQS "but for" transport of international emissions from Mexicali, Mexico. In accordance with the CCAA, the $PM_{2.5}$ SIP satisfies the attainment demonstration requirement satisfying the provisions of the CCAA (ICAPCD 2018b).

In addition to the above plans, the ICAPCD is working cooperatively with counterparts from Mexico to implement emissions reductions strategies and projects for air quality improvements at the border. The two countries strive to achieve these goals through local input from states, county governments, and citizens. Within the Mexicali and Imperial Valley area, the Air Quality Task Force has been organized to address those issues unique to the border region known as the Mexicali/Imperial air shed. The Air Quality Task Force membership includes representatives from federal, State, and local governments from both sides of the border, as well as representatives from academia, environmental organizations, and the general public. This group was created to promote regional efforts to improve the air quality monitoring network, emissions inventories, and air pollution transport modeling development, as well as the creation of programs and strategies to improve air quality.

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[1] 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.

[1] The Ringelmann scale is a scale for measuring the apparent density or opacity of smoke.

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.

Rule 801 – Construction and Earthmoving Activities. Rule 801 aims to reduce the amount of PM_{10} entrained in the ambient air as a result of emissions generated from construction and other earthmoving activities by requiring actions to prevent, reduce, or mitigate PM_{10} emissions. This rule applies to any construction and other earthmoving activities, including, but not limited to, land clearing, excavation related to construction, land leveling, grading, cut and fill grading, erection or demolition of any structure, cutting and filling, trenching, loading or unloading of bulk materials, demolishing, drilling, adding to or removing bulk of materials from open storage piles, weed abatement through disking, back filling, travel on-site and travel on access roads to and from the site.

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 for 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 – 2020-2045 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 September 3, 2020, SCAG adopted the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2020). The RTP/SCS or "Connect SoCal" 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:

- Reduce greenhouse gas emissions and improve air quality.

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 3.4-5 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 3.4-5. 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 fossil fuel burning facilities. 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 Measures (Applicant Proposed Measure AQ-1). 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 Measures (Applicant Proposed Measure AQ-1). Therefore, the proposed project is consistent with this objective.

Source: County of Imperial 2016

3.4.3 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 O_3 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 2017b). 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 3.4-6. Projects can be classified as either Tier 1 or Tier 2 projects, depending on the project's operational emissions. As shown in Table 3.4-6, Tier 1 projects are projects that emit less than 137 pounds per day of nitrogen oxide (NOx) or reactive organic gases (ROGs); less than 150 pounds per day of PM10 or SOx; 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 (ICAPCD 2017b). Alternatively, Tier 2 projects are projects that emit 137 pounds per day of NOx or ROG or greater; 150 pounds per day of PM_{10} or SOx 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 (ICAPCD 2017b).

Table 3.4-6. Imperial County Air Pollution Control District Significance Thresholds for Operation

Criteria Pollutant	Tier 1 Thresholds	Tier 2 Thresholds
NO_X and ROG	Less than 137 pounds per day	137 pounds per day and greater

Table 3.4-6. Imperial County Air Pollution Control District Significance Thresholds for Operation

Criteria Pollutant	Tier 1 Thresholds	Tier 2 Thresholds
PM_{10} and SO_2	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 2017b

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; SOx – 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 *Air Quality 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 3.4-7 presents the construction emission thresholds that are identified by ICAPCD.

Table 3.4-7. Imperial County Air Pollution Control District Significance Thresholds for Construction Activities

Pollutant	Thresholds
PM_{10}	150 pounds per day
ROG	75 pounds per day
NO_X	100 pounds per day
CO	550 pounds per day

Source: ICAPCD 2017b

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 U.S. 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 operation 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.

Once fully constructed, the proposed project would be operated on an unstaffed basis and be monitored remotely from the Brawley Geothermal Power Plant control room, 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 up to 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. Operational emissions would include vehicle trips from employees who commute to and from the project site (i.e., to control site operation and perform equipment maintenance).

The ICAPCD's *Air Quality Handbook* establishes aggregate emission calculations for determining the potential significance of a project. In the event that the emissions exceed the established thresholds (Table 3.4-6 and Table 3.4-7), air dispersion modeling may be conducted to assess whether the project results in an exceedance of an air quality standard.

An air quality technical report was prepared by Vista Environmental (Appendix C of this EIR). This report was used in the evaluation of project-related construction and operational air quality impacts. The emissions of criteria air pollutants were estimated using methodologies recommended by the ICAPCD. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2020.4.0.[2] Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults, with some refinements, for Imperial County as well as timing and equipment identified by the project proponent. The following On-Road Fugitive Dust construction parameters were revised in the CalEEMod model: (1) The percent on-road pavement was changed to 85 percent to account for Best Avenue that is adjacent to the project site being paved; and (2) The Material Silt Content was changed to 3 percent in order to account for ICAPCD Rule 805 F.1.c that requires the installation of gravel or other low silt material with less than 5 percent silt content on all onsite roads. Operational air pollutant emissions were based on the project site plan. Associated emissions calculations and assumptions are included in Appendix C of this EIR.

[2] CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects.

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

Impact 3.4-1 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 air quality management plan (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 is a solar energy project and 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 RPS.

As shown in Table 3.4-5, 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 fossil fuel burning facilities.

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 3.4-6 and Table 3.4-7 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. Two basic sources of short-term emissions will be generated through project construction: operation of heavy-duty equipment (i.e., excavators, loaders, haul trucks) and the creation of fugitive dust during clearing and grading. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. 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 8 months from the commencement of the construction process to complete. Construction activities would primarily involve demolition and grubbing, grading of the project site to establish access roads and pads for electrical equipment, trenching for underground electrical collection lines, and the installation of solar equipment and security fencing. The construction emissions were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. Table 3.4-8 shows the maximum summer or winter daily emissions for each year of construction activities for the proposed project with implementation of ICAPCD's standard measures for fugitive dust (PM_{10}) control and standard mitigation measures for construction combustion equipment from the ICAPCD's CEQA Air Quality Handbook (ICAPCD 2017b). These standard mitigation measures are identified in Applicant Proposed Measure (APM) AQ-1.

As shown in Table 3.4-8, with implementation of APM AQ-1, the project's daily construction emissions would not exceed the ICAPCD thresholds for ROG, NOx, CO, SO_2, PM_{10}, and $PM_{2.5}$. Although the proposed project would not exceed the ICAPCD threshold for NO_x, the project applicant would implement APM AQ-2, which requires the construction equipment list to be submitted periodically to ICAPCD to perform a NO_x analysis to verify that equipment use does not exceed significance thresholds. To further reduce dust emissions during project construction, the project applicant will implement APM AQ-3, which limits the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less. Implementation of APM AQ-1 through AQ-3 would provide reduction strategies to further improve air quality and ensure that this potential impact would remain less than significant.

Table 3.4-8. Project Construction-Generated Emissions with Implementation of Imperial County Air Pollution Control District's Standard Measures for Fugitive Dust (PM_{10}) Control and Standard Mitigation Measures for Construction Combustion Equipment

	Pollutant (pounds per day)					
Construction Year	**ROG**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
2021	6.11	51.82	39.73	0.08	67.20	12.54
2022	4.57	39.74	36.41	0.12	128.90	14.44
Maximum Daily Emissions	**6.11**	**51.82**	**39.73**	**0.12**	**128.90**	**14.44**
ICAPCD Significance Threshold	**75**	**100**	**550**	**—**	**150**	**—**
Exceed ICAPCD Significance Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix C of this EIR

Operational Emissions. The proposed project requires minimal operations and maintenance activities conducted by two employees. Project-generated increases in emissions would be predominately associated with motor vehicle use for routine maintenance work and site security as well as panel upkeep and cleaning. Long-term operational emissions attributable to the project are identified in Table 3.4-9 and compared to the operational significance thresholds promulgated by the ICAPCD.

Table 3.4-9. Project Operational Emissions

Activity	Pollutant (pounds per day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area Sources[1]	5.35	0.00	0.04	0.00	0.00	0.00
Energy Usage[2]	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources[3]	0.17	0.18	1.31	0.00	2.35	0.27
Backup Generator[4]	0.05	0.17	0.18	0.00	0.01	0.01
Total Emissions	**5.57**	**0.35**	**1.53**	**0.00**	**2.35**	**0.28**
ICAPCD Significance Threshold	**137**	**137**	**150**	**550**	**550**	**150**
Exceed ICAPCD Significance Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix C of this EIR

Notes:

[1] *Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.*

[2] *Energy usage consist of emissions from natural gas usage (no natural gas usage during operation of the project).*

[3] *Mobile sources consist of emissions from vehicles and road dust.*

[4] *Backup Generator based on a 20 kW (62 Horsepower) diesel generator that has a cycling schedule of 30 minutes per week.*

As shown in Table 3.4-9, the project's operational emissions would not exceed the ICAPCD thresholds for CO, ROG, NOx, PM_{10} and $PM_{2.5}$. The proposed project will be required to implement all of the ICAPCD Regulation VIII, fugitive dust control measures during construction and operation of the proposed project. Furthermore, any stationary sources of emissions operated on site will be required to adhere to ICAPCD Rule 207, New and Modified Stationary Source Review and Rule 201 that require permits to construct and operate stationary sources. 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 operation in order to reduce fugitive dust emissions. Implementation of APM AQ-4 through AQ-6 would ensure that a Dust Suppression Management Plan is implemented, thereby ensuring that this potential impact would remain less than significant. To further reduce dust emissions during operation of the project, the project applicant will implement APM AQ-3, which limits the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less.

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 operation, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. This is considered a less than significant impact.

Applicant Proposed Measure(s)

AQ-1 **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. 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.

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.

- When commercially available, replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

AQ-2 **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 NO_x 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-3 **Speed Limit.** During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less.

AQ-4 **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-5 **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-6 **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.

Mitigation Measure(s)

No mitigation measures are required.

Significance After Mitigation

Although the proposed project would not exceed ICAPCD's significance thresholds, APM AQ-1 through AQ-6 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. Given the above, the proposed project would not conflict with implementation of applicable air quality plans, and impacts would be less than significant impact.

Impact 3.4-2 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 O_3 precursors)?

As shown in Table 3.4-2, the criteria pollutants for which the project area is in State 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 3.4-1, the emissions of criteria pollutants from project construction and operation activities are below the ICAPCD thresholds of significance. Furthermore, the proposed project will be required to implement all of the ICAPCD Regulation VIII, fugitive dust control measures during construction and operation of the proposed project. Furthermore, any stationary sources of emissions operated on site will be required to adhere to ICAPCD Rule 207, New and Modified Stationary Source Review and Rule 201 that require permits to construct and operate stationary sources. 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 3.4-3 Would the project expose sensitive receptors to substantial pollutant concentrations?

The nearest sensitive receptors to the project site include the following:

- Single-family homes approximately 40 feet to the north side of the project site, located near the northwest corner of the project site.
- Single-family residence on the east side of N Best Avenue, located near the northeast corner of the project site
- Single-family residence on the east side of N Best Avenue, located across the proposed project's primary access road
- Two single-family residences located at the northeast corner of the intersection of N Best Avenue and Ward Road
- Single-family residence (with a horse boarding/training facility) on the west side of N Best Avenue, located south of the project site)

The ICAPCD CEQA Guidelines detail that any development project that is located within close proximity to sensitive receptors and where the proposed project either 1) Has the potential to emit toxic or hazardous pollutant; or 2) Exceeds the ICAPCD criteria pollutant thresholds for construction and operation of the proposed project. In addition, any proposed industrial or commercial project located within 1,000 feet of a school must be referred to the ICAPCD for review.

As discussed above in Impact 3.4-1, the proposed project would not exceed the ICAPCD criteria pollutant threshold from either construction or operation of the proposed project. However, construction and operation of the proposed project would have the potential to emit TAC emissions, which have been analyzed separately below.

Toxic Air Contaminants Impacts from Construction. The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. According to CARB methodology,

health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk." "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30-year exposure period for the nearby sensitive receptors.

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. By January 2022, 50 percent or more of all contractors' equipment fleets must be Tier 2 or higher. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project. As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Operations-Related Sensitive Receptor Impacts. The proposed project would consist of the development of a solar facility with a BESS and a substation. Although the proposed solar PV panels, the lithium batteries utilized in the BESS, and the transformers utilized in the substation are made with toxic materials, only a negligible amount of TAC emissions are emitted from off-gassing from the PV panels, which would not create TAC concentrations high enough to create a significant cancer risk from TAC emissions. In addition, the proposed project would include a backup diesel generator, which would emit DPM emissions, which is categorized as a TAC. The backup diesel generator would be located in the southwest portion of the project site, where the nearest offsite sensitive receptor is a home on the east side of Best Avenue located approximately 1,900 feet to the east. Due to the distance that the nearest sensitive receptor, a less than significant TAC impact would occur from the backup diesel generator. Therefore, a less than significant TAC impact would occur during the on-going operations of the proposed project.

In summary, construction and operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.4-4 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 VOCs 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.

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. The project would comply with standard construction requirements which include limitations of when construction may occur. Furthermore, the proposed project would be required to adhere to ICAPCD Rule 407 which limits the discharge of any emissions that create odors in quantities that may cause a nuisance or annoyance to any considerable number of persons. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

The proposed project would consist of the development of a solar energy facility, which does not include any components that are a known sources of odors. Therefore, a less than significant odor impact would occur and no mitigation would be required.

Mitigation Measure(s)

No mitigation measures are required.

3.4.4 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 3.4-8. 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. Furthermore, any stationary sources of emissions operated on site will be required to adhere to ICAPCD Rule 207, New and Modified Stationary Source Review and Rule 201 that require permits to construct and operate

stationary sources. 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. Operation of the project, subject to the approval of a CUP, would be consistent with applicable federal, state, regional, and local plans and policies. The project would not result in any residual operational significant and unavoidable impacts with regards to air quality.

3.5 Biological Resources

This section identifies the biological and aquatic jurisdictional resources that may be impacted by the proposed Brawley Solar Energy Project. The following identifies the existing biological and jurisdictional resources in the project area, analyzes potential impacts of the proposed project, and recommends mitigation measures to avoid or reduce potential impacts of the proposed project. The information for this section is summarized from the *Biological Technical Report for the Brawley Solar Project* prepared by Chambers Group Inc. *(*Appendix D of this EIR)

As part of the *Biological Resources Technical Report*, Chambers Group Inc. conducted a literature review, desktop survey, and biological reconnaissance survey of the project site to document the existing biological resources, to assess the habitat for its potential to support sensitive plant and wildlife species, and to determine the potential impacts of the projects on biological resources.

For the purposes of this EIR, the term project survey area refers to the project site's boundaries, the area immediately along the proposed gen-tie line along Andre Road, and a portion of the existing North Brawley Geothermal Power Plant substation where the gen-tie line would interconnect.

3.5.1 Existing Conditions

Vegetation Communities and Land Cover Types

Nine vegetation communities were observed within the project survey area. The acreage of each vegetation community and land cover type within the project survey area is summarized in Table 3.5-1 and depicted in Figure 3.5-1. The majority of vegetation communities and land cover types mapped within the project survey area consisted of agriculture and bare ground.

Table 3.5-1. Vegetation Communities or Land Cover Types within the Project Survey Area

Vegetation Community or Land Cover Type	Acres within Project Survey Area[a]
Quail Bush Scrub*	4.86
Agricultural	91.96
Bare Ground	148.07
Developed	4.40
Disturbed	6.38
Bush Seepweed Scrub*	3.52
Arrow Weed Thickets*	6.23
Ornamental	1.87
Tamarisk Thickets	5.16
Project Survey Area Total	**272.45**

Source: Appendix D of this EIR

[a] *Vegetation and land cover type acreages are rounded to the nearest hundredth acre.*

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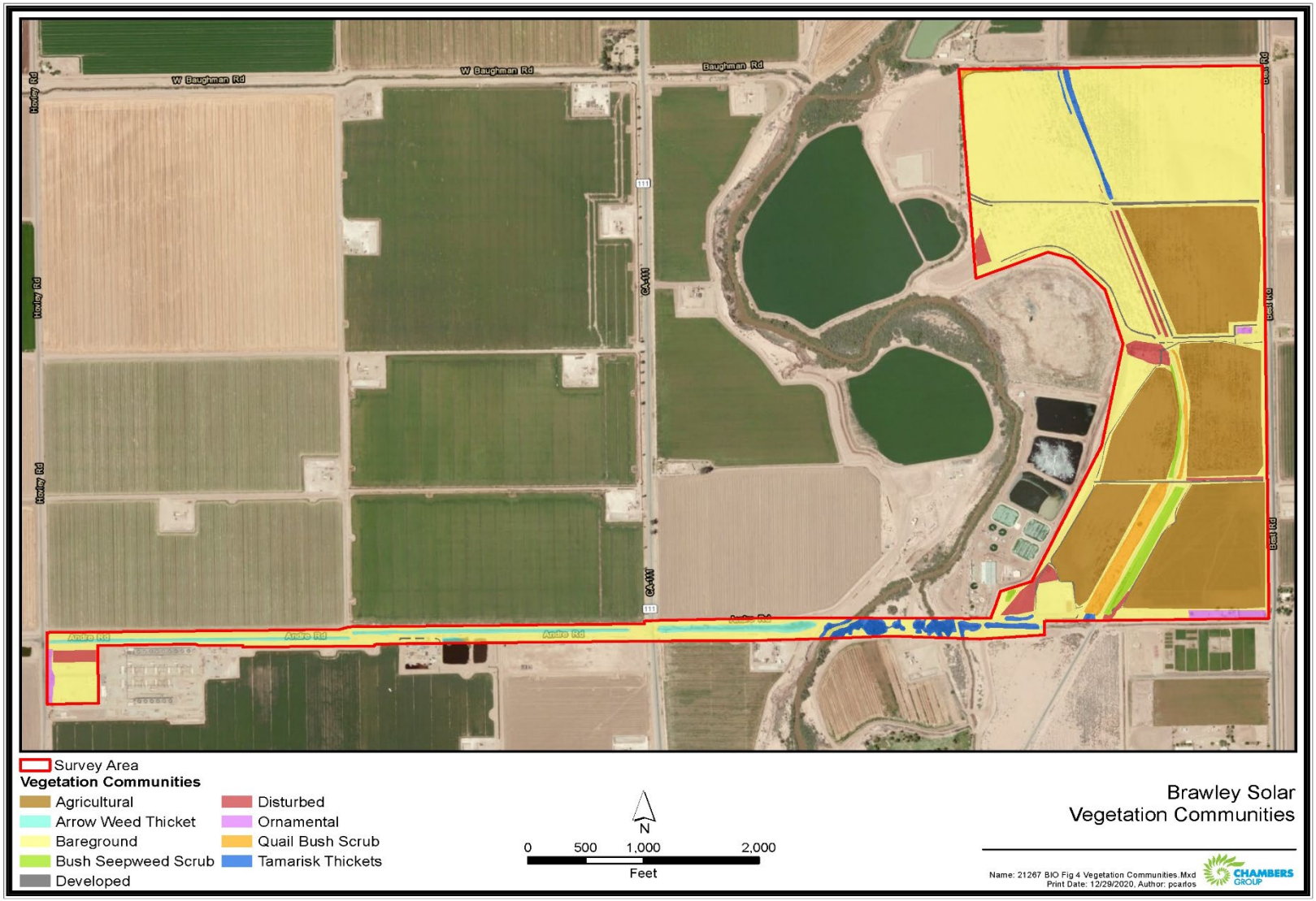
Figure 3.5-1. Vegetation Communities and Land Cover Types in the Project Survey Area



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Detailed descriptions of the applicable vegetation communities and land cover types occurring within the project survey area are described below.

QUAIL BUSH SCRUB

Quail bush scrub is dominated by quail bush with scattered bush seepweed (*Sueda nigra*) present in areas where the habitat gently slopes into more alkaline soils. The shrub layer is thick and continuous with a nonexistent herbaceous layer. Stands occur in areas where less alkaline or saline soils are present, favoring clay soils and more consistent topography where water does not accumulate easily. Plant species observed within the project site included bush seepweed, big saltbush, and spiny chlorocantha (*Chloracantha spinosa*).

AGRICULTURAL

Large swaths of the project site consist of plots of agricultural fields that are no longer in use. Bermuda grass (*Cynodon dactylon*) is found in these areas with alfalfa (*Medicago sativa*) seedlings in lower numbers. Agricultural fields are similar to Bare Ground habitat where areas have higher water permeability and higher fossorial rodent habitat potential.

Mexican palo verde are planted along the outside of several agriculture fields to serve as wind breaks for agricultural purposes and are considered agricultural habitat. Trees are mature, averaging 15 meters in height and are continuously planted alongside the agricultural fields. Isolated honey mesquite (*Prosopis glandulosa*) shrubs were also observed along the northwestern portion of the poroject site along the tree line. Other plant species observed within the project site included alfalfa (*Medicago sativa*), Mexican palo verde, big saltbush, and tamarisk.

BARE GROUND

Bare Ground areas are generally devoid of vegetation but do not contain any form of pavement. Bare Ground has higher water permeability and higher fossorial rodent habitat potential. Bare Ground is present throughout the entire project site, with small patches between agricultural land and long swaths that include dirt access roads that receive very little use. Isolated alfalfa was the only vegetation observed in these areas.

DEVELOPED

Developed areas are areas that have been altered by humans and now display man-made structures such as urban areas, houses, paved roads, buildings, parks, and other maintained areas.

DISTURBED

Disturbed areas generally have altered topography and soils due to man-made reasons, usually pertaining to development or agricultural purposes. Any shrubs in the shrub canopy are isolated, and the herbaceous layer is sparse to intermittent with pockets of advantageous non-native species that spread from a singular location. Species observed included Bermuda grass (*Cynodon dactylon*), Mediterranean schismus (*Schismus barbatus*), and lamb's quarters (*Chenopodium album*).

BUSH SEEPWEED SCRUB

Bush seepweed is dominant in the shrub canopy with scattered quail bush present. The shrub layer is intermittent to continuous with an herbaceous layer that is very sparse. Stands occur in gently sloping plains bordering agricultural fields or irrigation ditches and areas with disturbed hydrology due to man-

made alteration. Soils are deep and saline or alkaline. Species observed within the project site included bush seepweed and big saltbush.

ARROYO WEED THICKETS

The shrub canopy is intermittent to continuous with shrubs reaching 2 to 3 meters in height. Vegetation is dominated by arrow weed and extends along the water feature, occasionally extending over the bank and into the access road. The herbaceous layer is open and intermittent, existing in between stands of cattail and arrow weed. The habitat exists in irrigation ditches consisting of soils that are sandy and loamy where water is permeable. Plant species observed included arrow weed, tamarisk, cattail, big saltbush, saltgrass (*Distichlis spicata*), and salt heliotrope (*Heliotropium curassavicum*).

ORNAMENTAL

Ornamental Landscaping includes areas where the vegetation is dominated by non-native horticultural plants. Typically, the species composition consists of introduced trees, shrubs, flowers, and turf grass.

TAMARISK THICKETS

Tamarisk dominates the tree canopy and is thick and continuous. This non-native shrub layer is sparse with isolated quail bush present, while the herbaceous layer contains very little vegetation. Trees average 15 meters in height and exist in irrigation ditches or on the upper banks along water features. Species observed within the project site included tamarisk and big saltbush.

Sensitive Natural Communities

Quailbush scrub, bush seepweed scrub, and arrow weed thickets occur within the project survey area and are considered sensitive natural communities by CDFW (CDFW 2021).

Special-Status Species

Literature Review

Prior to conducting field surveys, a literature search was conducted to identify special-status plant and animal species with potential to occur within the project survey area. Special-status plants and animal species were evaluated for their potential to occur within the project survey area where impacts could potentially occur.

Using information from the literature review and observations in the field, a list of special-status plant and animal species that have potential to occur within the project survey area was generated. For the purposes of this assessment, special-status species are defined as plants or animals that:

- have been designated as either rare, threatened, or endangered by CDFW, CNPS, or the USFWS, and/or are protected under either the federal or California ESAs;
- are candidate species being considered or proposed for listing under these same acts;
- are fully protected by the California FGC Sections 3511, 4700, 5050, or 5515; and
- are of expressed concern to resource and regulatory agencies or local jurisdictions.

Biological Reconnaissance Survey

Chambers Group biologists conducted the general reconnaissance survey within the project site to identify the potential for occurrence of sensitive species, vegetation communities, or habitats that could

support sensitive wildlife species, including those identified in the literature review. The survey was conducted on foot throughout the project site between on October 22, 2020 to identify the potential for occurrence of sensitive species, vegetation communities, or habitats that could support sensitive wildlife species. Plant and wildlife species, including any special-status species that were observed during the survey, were recorded (see Appendix D of this EIR).

Potential for Occurrence Determinations

Special-status species reported for the region in the literature review or for which suitable habitat occurs on the BSAs were assessed for their potential to occur based on the following guidelines listed in Table 3.5-2.

Table 3.5-2. Criteria for Evaluating Sensitive Species Potential for Occurrence

Potential for Occurrence	Criteria
Absent:	Species is restricted to habitats or environmental conditions that do not occur within the project site. Additionally, if the survey was conducted within the blooming period of the species and appropriate habitat was observed in the surrounding area but the species was not observed within the Project impact area, it was considered absent.
Low:	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the project site, and/or habitats or environmental conditions needed to support the species are of poor quality.
Moderate:	Either a historical record exists of the species within the immediate vicinity of the project site (approximately 3 miles) and marginal habitat exists on the project site, or the habitat requirements or environmental conditions associated with the species occur within the project site, but no historical records exist within 5 miles of the Project site.
High:	Both a historical record exists of the species within the project site or its immediate vicinity (approximately 1 mile), and the habitat requirements and environmental conditions associated with the species occur within the project site.
Present:	Species was detected within the project site at the time of the survey.

Source: Appendix D of this EIR

Plant Species

Numerous special-status plant species have been recorded within project site, according to the CNDDB and CNPSEI. Special-status plant species identified in the literature review, and their potential to occur within the project site are discussed below.

Available records resulted in a list of five federally and/or state listed threatened and endangered or rare sensitive plant species that may potentially occur within the project site. After the literature review and the reconnaissance-level survey, it was determined that one species had a low potential to occur, and four of these species are considered Absent from the project site due to lack of suitable habitat.

The following four plant species are considered **absent** from the project site due to lack of suitable habitat:

- gravel milk-vetch (*Astragalus sabulonum*)
- Munz's cholla (*Cylindropuntia munzii*)
- glandular ditaxis (*Ditaxis claryana*)
- Thurber's pilostyles (*Pilostyles thurberi*)

The following species that is considered to have a **low potential** to be observed in the project site due to lack of suitable habitat includes:

- **Abram's spurge (*Euphorbia abramsiana*).** Abram's spurge is an annual herb in the spurge family that mostly exists in Sonoran or Mojave Desert habitats, favoring sandy flats where water is permeable. Although the habitats available at the project site are not typically where this plant would grow, it has the low potential to occur in fields, irrigation ditches, and other disturbed areas that all exist within the project site. In addition, this species was positively identified less than 2 miles from the project site. This identification, however, was made before 1940 and the population is presumed to be extirpated due to agricultural and residential development.

Wildlife Species

A database search resulted in a list of 23 federally and/or state listed endangered or threatened, Species of Concern, or otherwise sensitive wildlife species that may potentially occur within the project site. After a literature review and the assessment of the various habitat types within the project site, it was determined that 17 sensitive wildlife species were considered absent from the project site, three species have a low potential to occur, two species have a high potential to occur, and one species was present within the project site. Factors used to determine potential for occurrence included the quality of habitat and the location of prior CNDDB records of occurrence.

The following 17 wildlife species are considered **absent** from the project site due to lack of suitable habitat present on the project site:

- American badger (*Taxidea taxus*)
- black skimmer (*Rynchops niger*)
- California black rail (*Laterallus jamaicensis coturniculus*)
- Colorado Desert fringe-toed lizard (*Uma notata*)
- crissal thrasher (*Toxostoma crissale*)
- desert pupfish (*Cyprinodon macularius*)
- Gila woodpecker (*Melanerpes uropygialis*)
- gull-billed tern (*Gelochelidon nilotica*)
- Le Conte's thrasher (*Toxostoma lecontei*)
- lowland leopard frog (*Lithobates yavapaiensis*)
- Palm Springs pocket mouse (*Perognathus longimembris bangsi*)
- razorback sucker (*Xyrauchen texanus*)
- Sonoran Desert toad (*Incilius alvarius*)
- western snowy plover (*Charadrius alexandrinus nivosus*)
- yellow warbler (*Setophaga petechia*)
- Yuma hispid cotton rat (*Sigmodon hispidus eremicus*)
- Yuma Ridgway's rail (*Rallus obsoletus yumanensis*)

The analysis of the CNDDB search and field survey resulted in three species with a **low** potential to occur on the project site due to low quality habitat:

- flat-tailed horned lizard (*Phrynosoma mcallii*)
- short-eared owl (*Asio flammeus*)
- western yellow bat (*Lasiurus xanthinus*)

The analysis of the CNDDB search and field survey resulted in two species with a **high** potential to occur on the project site. These species are described below:

- **Burrowing owl.** The burrowing owl (BUOW) is a California Species of Special Concern. The burrowing owl breeds in open plains from western Canada and the western United States, Mexico through Central America, and into South America to Argentina. This species inhabits dry, open, native or non-native grasslands, deserts, and other arid environments with low-growing and low-density vegetation. It may occupy golf courses, cemeteries, road rights-of way, airstrips, abandoned buildings, irrigation ditches, and vacant lots with holes or cracks suitable for use as burrows. Burrowing owls typically use burrows made by mammals such as California ground squirrels (*Otospermophilus beecheyi*), foxes, or badgers. When burrows are scarce, the burrowing owl may use man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes. High quality habitat exists within the project site. In addition, burrowing owl have recently been recorded within 0.14 mile of the project site. Therefore, this species has a high potential to occur within the project site.
- **Mountain plover.** The mountain plover (wintering) is a California Species of Special Concern and a federally Proposed Threatened Species. This species breeds from the prairie and sagebrush country of north-central Montana, eastern Wyoming, and the area around southeastern Colorado. It winters from central California along the southern border southward to northern Mexico. Common wintering habitats consist of dry, barren ground, smooth dirt fields, agricultural fields, and shortgrass prairies. This species tends to form small flocks in the winter. It is one of the few shorebird species that prefers habitats away from water. The project site contains suitable habitat of moderate to high quality. In addition, mountain plover have been recorded to occur within 1 mile of the project site. Therefore, this species has a high potential to occur with the project site.

One species was **present** within and directly adjacent to the project site during the survey. In addition, this species has been recorded to nest within and surrounding the project site. This species is described below:

- **Loggerhead shrike.** The loggerhead shrike (nesting) is a California Species of Special Concern. Habitats may include oak savannas, open chaparral, desert washes, juniper woodlands, Joshua tree woodlands, and other semi-open areas. It can occupy a variety of semi-open habitats with scattered trees, large shrubs, utility poles, and other structures that serve as lookout posts while searching for potential prey. Loggerhead shrikes prefer dense, thorny shrubs and trees, brush piles, and tumbleweeds for nesting. During the survey, one individual was observed just outside the northwest boundary of the project site, and an additional individual was observed within the southwest portion of the project site. In addition, suitable nesting and foraging habitat is present within and directly adjacent to the project site.

Aquatic Resources

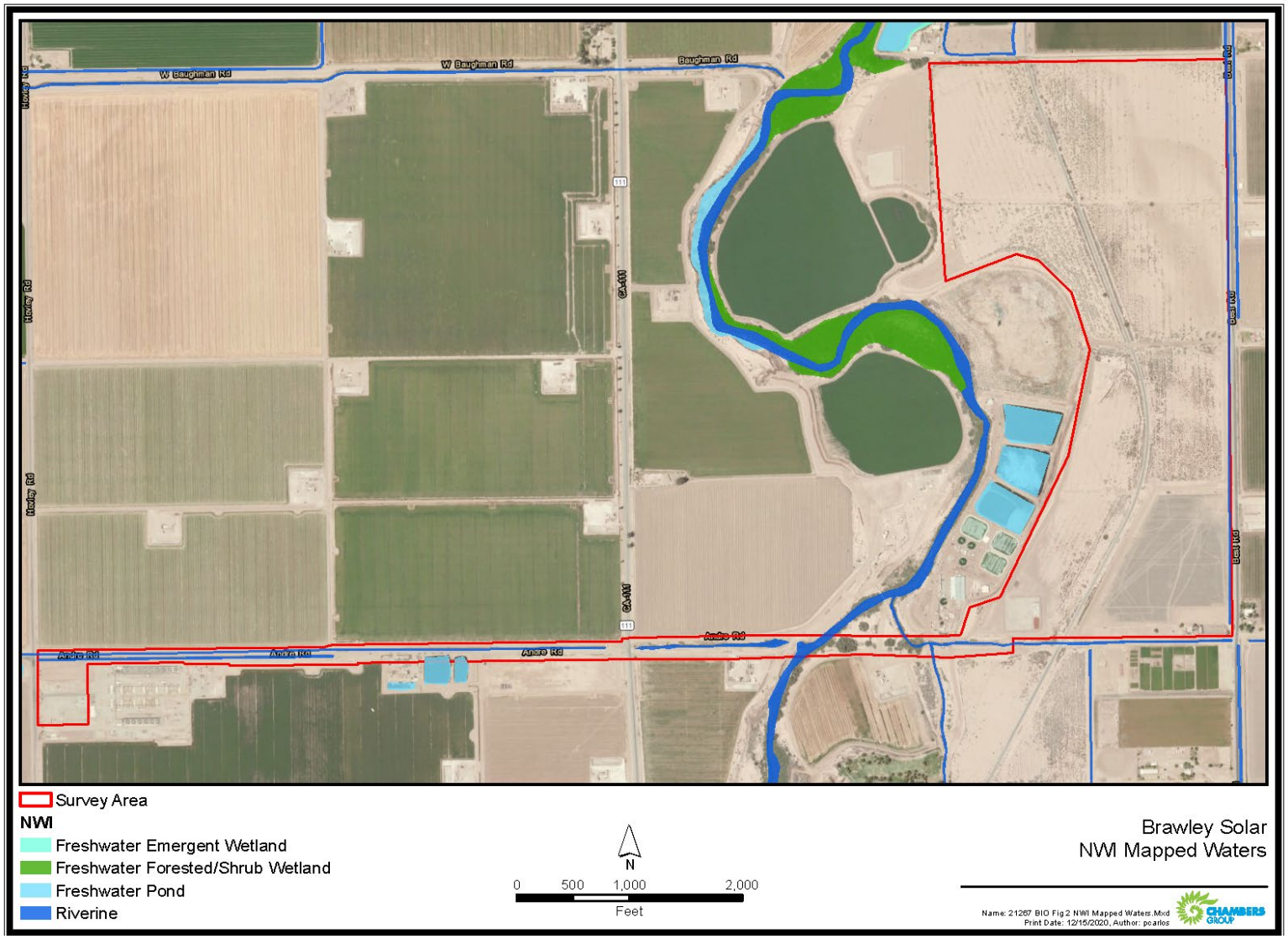
A general assessment of jurisdictional waters regulated by the Porter-Cologne Water Quality Act, California Fish and Game Code Sections 1600 and 1602, United States Army Corps of Engineers (USACE), and California Regional Water Quality Control Board (RWQCB) was conducted for the project site. The assessment was conducted by a desktop survey through the USGS National Hydrography Dataset for hydrological connectivity.

The western portion of the project site is located within the New River watershed (Hydrologic Unit Code [HUC-10] 1810020411) and within the Federal Emergency Management Agency (FEMA) 100-year flood zone. The New River watershed at the project site is bordered to the south by Imperial Valley, to the west by the Vallecito Mountains, to the north by the Salton Sea, and to the east by the Chocolate Mountains. The New River is the major water source for the watershed, which drains into the Salton Sea. Along its watercourse, several tributaries, including mostly agricultural drains and canals discharge into the New River.

The eastern portion of the project site is located within the Alamo River watershed (HUC-10 1810020408) and is within the FEMA 100-year flood zone. The Alamo River is the major water source for the watershed, which also drains into the Salton Sea. The primary tributaries to the Alamo River are agricultural drains and canals. Both rivers are known to be heavily polluted with agricultural and bacterial toxins.

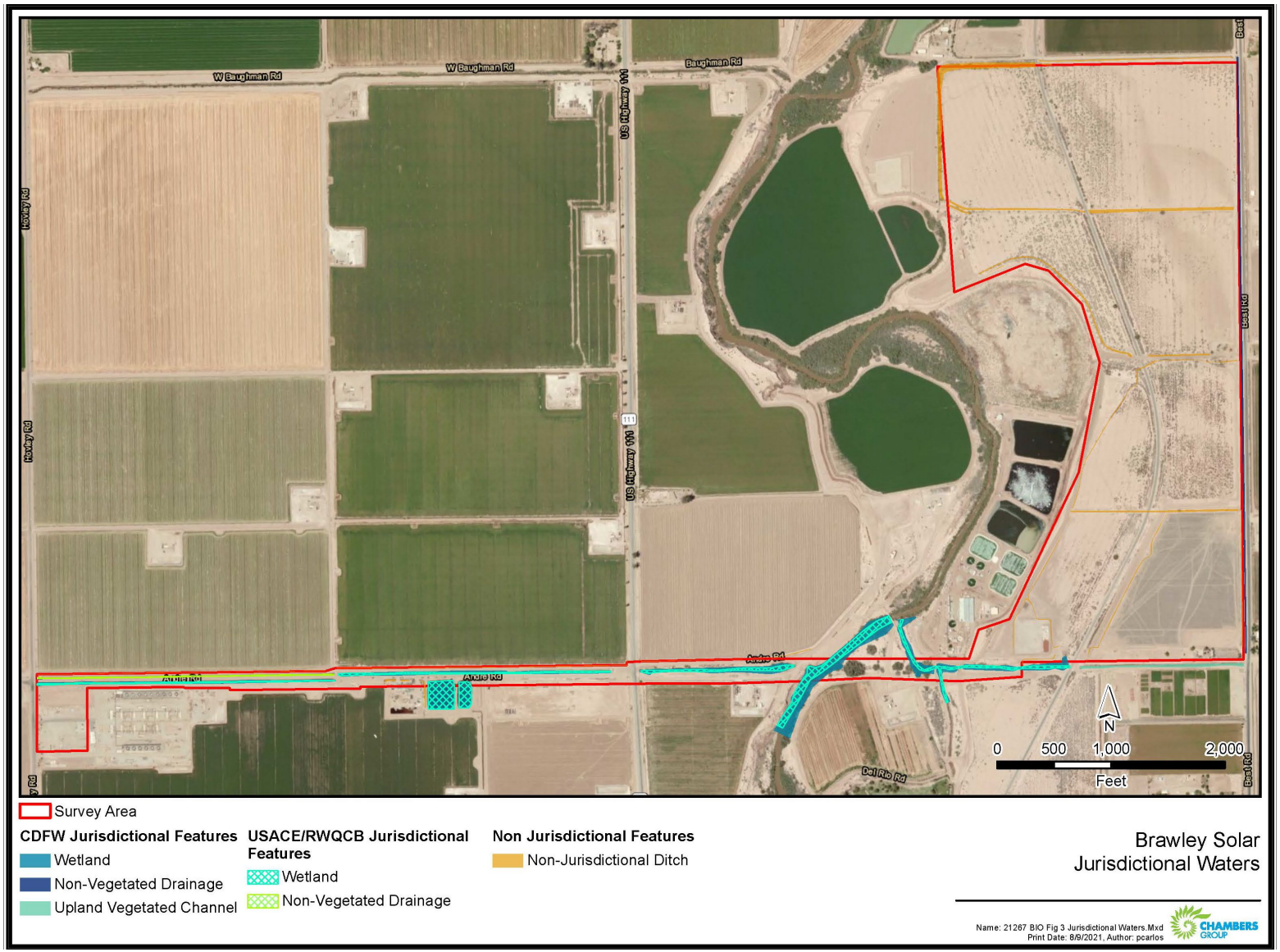
Several jurisdictional and non-jurisdictional features were observed within the project survey area. The New River, a National Wetlands Inventory (NWI) mapped blueline, flows through the middle portion of the project survey area (Figure 3.5-2). In addition, several NWI mapped blueline canals, drains, and ditches owned by IID flow along the borders of the project survey area. The locations of the features observed during the field survey are shown in Figure 3.5-3.

Figure 3.5-2. NWI Mapped Waters in Project Survey Area



Source: Appendix D of this EIR

Figure 3.5-3. Jurisdictional Waters in the Project Survey Area



Source: Appendix D of this EIR

WETLAND FEATURES

Feature 1 (IID "Spruce Three Drain"). This feature occurs along the proposed gen-tie line located in the southwest portion of the project site along Andre Road. The Spruce Three drain is a mapped NWI stream (Riverine Intermittent Stream Bed, Seasonally Flooded, Excavated). The drainage is man-made and receives flow from surface runoff from Andre Road and surrounding agricultural fields. Bank-to-bank measurements ranged from 13 to 80 feet.

Ordinary High Water Mark (OHWM) measurements ranged from 6 to 40 feet. The drain flows into the project site from the west at Hovley Road along the south side of Andre Road, flows east for approximately 0.50 mile and crosses under Andre Road to the north side of the road, and appears to continue to flow eastward until it empties into the New River, which terminates at the Salton Sea. The feature is lined with riparian vegetation dominated by arrow weed (Pluchea sericea) a Facultative Wetland (FACW) species, meaning one that usually occurs in wetlands but is also found in non-wetlands.

Feature 2. This feature occurs along the gen-tie line portion of the project site, on the north side of Andre Road. Feature 2 is a man-made, unvegetated cement-lined ditch. Bank-to-bank measured 10 feet; the OHWM measured 4 feet. The feature flows into the project site from the west for approximately 0.50 mile, where it appears to connect to the Spruce Three Drain. Feature 2 receives flow from road runoff and agricultural runoff from the surrounding agricultural fields.

Feature 3 (New River). This feature flows through the eastern portion of the gen-tie line. The New River is an NWI mapped blueline wetland riverine system (Riverine Lower Perennial, Unconsolidated Bottom Wetland, Permanently Flooded). Bank-to bank-measurements ranged from 110 to 170 feet. OHWM measurements ranged from 42 to 107 feet. The river flows south to north from Mexico and terminates in the Salton Sea. Within the project site, the vegetation along the banks of the river consists completely of tamarisk (*Tamarix* spp.) a Facultative (FAC) species, one that is equally likely to occur in wetlands or non-wetlands.

Feature 4 (IID "Livesly Drain"). This feature occurs east of the New River in the eastern portion of the gen-tie line. The Livesly Drain is a NWI mapped blueline stream. This feature is man-made and receives flow from agricultural runoff. The Livesly Drain flows into the project site from the east, turns north, and exits into the New River. Bank-to-bank measurements ranged from 20 to 120 feet. The OHWM measurements ranged from 13 to 20 feet. The portion of the drainage within the project site is composed completely of tamarisk.

Feature 5 (IID "Oakley Canal"). This feature occurs just south of the Livesly Drain. The Oakley Canal is a NWI mapped blueline stream (Riverine Intermittent Stream Bed, Seasonally Flooded, Excavated). Feature 5 is man-made and receives flow from agricultural runoff. The Oakley Canal flows south to north and empties into the Livesly Canal. Bank-to-bank measurements ranged from 25 feet to 48 feet. OHWM measured 15 feet. The vegetation along the banks of Feature 5 consists primarily of tamarisk.

Feature 6 (IID "Best Canal"). This feature occurs along the eastern border of the project site on the west side of N Best Avenue. The canal is a NWI mapped blueline stream (Riverine Intermittent Stream Bed, Seasonally Flooded, Excavated) that receives flow from agricultural and road run-off. Bank-to-bank the canal measured 15 feet; OHWM measured 5 feet. The canal is unvegetated throughout the project site and flows south to north, exits the project site, turns west and eventually empties into the New River.

Feature 7. This feature occurs in the southeast portion of the project site on the south side of Andre Road along the gen-tie line. Feature 7 consists of two man-made detention ponds with riparian vegetation and are mapped NWI wetlands (Palustrine Unconsolidated Bottom Wetland, Permanently Flooded, Excavated). The vegetation within Feature 7 is dominated by tamarisk and cattail (*Typha* spp.), an Obligate (OBL) species, one that almost always occurs naturally in wetlands. In addition, arrow weed and big saltbush (*Atriplex lentiformis*), also known as quail bush, a FAC species, were observed.

MANMADE FEATURES

Several man-made unvegetated ditches were observed throughout the project site. When a field is irrigated, water is allowed to flow through smaller man-made earthen or concrete-lined ditches (typically referred to as a "head ditch"), which distributes the water evenly across the field. At the opposite, lower elevation side of the field, excess water is collected into another ditch (typically referred to as a "tail ditch").

The ditches present on the project site are both earthen and concrete-lined and are frequently rebuilt when the fields are plowed and disked. These ditches occur primarily along the edges of the agricultural fields and across portions of the fields. None of these ditches connect directly to a major feature, and most terminate at small, man-made detention areas. Therefore, these features are not considered jurisdictional under CDFW, RWQCB, or USACE.

The Imperial County Fire Department (ICFD) Fire Prevention Bureau requires two points of emergency access for the project along the west side of the railroad tracks. One access route may be extended from the main access road located off N Best Avenue utilizing an existing access road that crosses over a concrete lined channel and a second access route is proposed to be constructed in the northwest portion of the project site crossing over a non-jurisdictional irrigation ditch. Vegetation within this feature comprised of quail bush, and non-native Mexican palo verde (*Parkinsonia aculeata*) and tamarisk.

Wildlife Movement Corridors, Linkages, and Significant Ecological Areas

The concept of habitat corridors addresses the linkage between large blocks of habitat that allow the safe movement of mammals and other wildlife species from one habitat area to another. The definition of a corridor is varied, but corridors may include such areas as greenbelts, refuge systems, underpasses, and biogeographic land bridges, for example. In general, a corridor is described as a linear habitat, embedded in a dissimilar matrix, which connects two or more large blocks of habitat. Wildlife movement corridors are critical for the survivorship of ecological systems for several reasons. Corridors can connect water, food, and cover sources, spatially linking these three resources with wildlife in different areas. In addition, wildlife movement between habitat areas provides for the potential of genetic exchange between wildlife species populations, thereby maintaining genetic variability and adaptability to maximize the success of wildlife responses to changing environmental conditions. This is especially critical for small populations subject to loss of variability from genetic drift and effects of inbreeding. Naturally, the nature of corridor use and wildlife movement patterns varies greatly among species.

Habitat Conservation Plans

The project site is located within the designated boundaries of the Desert Renewable Energy Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP). However, the project is not located within or adjacent to an Area of Critical Environmental Concern.

3.5.2 Regulatory Setting

This section identifies and summarizes federal, state, and local laws, policies, and regulations that are applicable to the proposed projects.

Federal

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 Endangered Species Act (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. The U.S. Fish and Wildlife Service (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. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR Part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

Section 404 Permit (Clean Water Act)

The purpose of the Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredge and fill material into waters of the U.S., including wetlands, without a permit from the U.S. Army Corps of Engineers (USACE). 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 Endangered Species Act

Provisions of CESA protect state-listed threatened and endangered species. The California Department of Fish and Wildlife (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 (FGC). Additionally, California FGC contains lists of vertebrate species designated as "fully protected" (California FGC Sections 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 et. seq (as amended)

The California FGC Section 1600 et. seq. requires that a Notification of Lake or Streambed Alteration be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the proposed actions and, if necessary, submits to the Applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the Applicant is the Streambed Alteration Agreement (SAA). Often, projects that require an SAA also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA may overlap.

California Fish and Game Code Sections 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.

California Fish and Game Code Sections 1900-1913 (Native Plant Protection Act)

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, Section 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.

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 3.5-3 analyzes the consistency of the project with specific policies contained in the Imperial County General Plan associated with biological resources.

Table 3.5-3. 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. Implementation of the proposed project has the potential to impact special-status wildlife species, including burrowing owl, mountain plover, and loggerhead shrike. Applicable agencies responsible for protecting plants and wildlife will be notified of the proposed projects 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 a CUP, General Plan Amendment, and Zone Change 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. Implementation of the proposed project has the potential to impact special-status wildlife species, including burrowing owl, mountain plover, and loggerhead shrike. However, with implementation of mitigation (Mitigation Measures BIO-1 through BIO-4), the project would not result in residual significant or unmitigable impacts on biological resources.

Source: County of Imperial 1993

3.5.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering the respective project's 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 interact with local biological resources 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.

A biological resources technical report was prepared for the project. The information obtained from the sources 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 biological resources that could result from project construction and operational activities were evaluated qualitatively based on-site conditions; expected construction practices; and materials, locations, and duration of project construction and related activities.

Impact Analysis

Impact 3.5-1 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?

Construction

SPECIAL-STATUS PLANTS

One plant species, Abram's spurge, has a low potential to occur on the project site. However, the project site has low quality habitat for this species and this plant species has not been recorded within 3 miles of the project site in the last 25 years. Therefore, no impacts to these species are anticipated to occur due to project related construction activities.

SPECIAL-STATUS WILDLIFE

Three species have a low potential to occur (flat-tailed horned lizard, short-eared owl, and western yellow bat), two species have a high potential to occur (BUOW and mountain plover), and one species (loggerhead shrike) was present within the project site. During the site reconnaissance, two loggerhead shrikes were observed within the project site.

Flat-tailed horned lizard, short-eared owl, and western yellow bat have a low potential to occur on the project site. However, low quality habitat for these species occurs within the project site and none of these species have been recorded within the project site within the last 25 years. Therefore, no impacts to these species are anticipated to occur as a result of project activities.

Burrowing owl and mountain plover are considered to have a high potential to occur within the project site. Two loggerhead shrikes were observed within the project site. Direct impacts to these species that could occur include injury, mortality, nest failures, and loss of young. Indirect impacts include loss of nesting and foraging habitat, increase in anthropogenic effects (i.e., noise levels, introduction of invasive and nonnative species, increase in human activity, increase in dust). Implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4 would reduce potential impacts to a level less than significant. Mitigation Measure BIO-1 requires implementation of general impact avoidance and minimization measures during construction such as designating a Project Biologist to oversee compliance with protective measures for biological resources, delineating construction zones, and working and traveling only in designated work areas and access roads. Mitigation Measure BIO-2 requires that all construction personnel to complete a Worker Environmental Awareness Program prior to the start of construction. Mitigation Measure BIO-3 requires pre-construction surveys for burrowing owl. 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. Mitigation Measure BIO-4 required a pre-construction nesting bird survey to be conducted by a qualified avian biologist to ensure that active bird nests, including those for the loggerhead shrike and mountain plover will not be disturbed or destroyed.

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 is anticipated to occur due to electrocution along the proposed gen-tie line.

Mitigation Measure(s)

BIO-1 **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
- The ground beneath all parked equipment and vehicles shall be inspected for wildlife before moving.

BIO-2 **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 survey 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-3 **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-4 **Pre-Construction Nesting Bird Survey.** If construction or other project activities are scheduled to occur during the bird breeding season (typically February 1 through August 31 for raptors and March 15 through August 31 for the majority of migratory bird species), a pre-construction nesting-bird survey shall be conducted by a qualified avian biologist to ensure that active bird nests, including those for the loggerhead shrike and mountain plover will not be disturbed or destroyed.

The survey shall be completed no more than three days prior to initial ground disturbance. The nesting-bird survey shall include the project site and adjacent areas where project activities have the potential to affect active nests, either directly or indirectly due to construction activity or noise. If an active nest is identified, the biologist shall establish an appropriately sized disturbance-limit buffer around the nest using flagging or staking. Construction activities shall not occur within any disturbance-limit buffer zones until the nest is deemed inactive by the qualified biologist. If construction activities cease for a period of greater than three days during the bird breeding season, a pre-construction nesting bird survey shall be conducted prior to the commencement of activities.

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.).

Significance After Mitigation

The proposed project has the potential to impact special-status wildlife species during construction. However, implementation of Mitigation Measures BIO-1 through BIO-4 would reduce potential impacts to a level less than significant.

Impact 3.5-2 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?

Quailbush scrub, bush seepweed scrub, and arrow weed thickets occur within the project survey area and are considered sensitive natural communities by CDFW (CDFW 2021). The proposed project has been designed to avoid these sensitive natural communities. Access routes would be constructed in an area that will avoid or minimize impacts to native vegetation found within the irrigation ditch, and flagging and/or staking would be used to clearly define the work area boundaries to avoid impacts to adjacent native communities. Therefore, the proposed project would have no impact on sensitive natural communities.

Mitigation Measure(s)

No mitigation is required.

Impact 3.5-3 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?

As shown in Figure 3.5-2 and Figure 3.5-3, several jurisdictional features were observed within the project site. The New River, a NWI mapped blueline, flows through the middle portion of the project site. In addition, several NWI mapped blueline canals, drains, and ditches owned by IID flow along the borders of the project site. However, the proposed project has been designed to avoid impacts to waters of the State and waters of the U.S. As shown on the Site Plan (Figure 2-3), project components would not be sited on the project site where aquatic resources are present.

The emergency access route from the northwest portion of the project site will be designed to cross a non-jurisdictional agricultural ditch. Potential access route options include converting a non-vegetated portion of an open cement culvert to a corrugated metal pipe (CMP) or a closed concrete pipe of similar size and establishing an access road above the pipe. Native quail bush and non-native tamarisk and Mexican palo verde are located within the irrigation ditch. However, the access routes would be constructed in an area that will avoid impacts to native vegetation found within the irrigation ditch. Therefore, implementation of the project would result in no impact on state or federally protected aquatic resources.

Mitigation Measure(s)

No mitigation is required.

Impact 3.5-4 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?

The project site does not function as a wildlife corridor. The project site is located adjacent to areas containing existing disturbances (i.e., roads, railroad tracks, and active agricultural land). The majority of the project site does not contain suitable vegetation or cover to support wildlife movement and are nestled between agricultural and development; therefore, wildlife movement opportunities connecting the project site to large, undeveloped natural areas is limited. The proposed project is not expected to significantly impact wildlife movement through the project vicinity and a less than significant impact would occur.

Mitigation Measure(s)

No mitigation is required.

Impact 3.5-5 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, BESS, and associated electrical transmission lines. Development of the solar facility would be subject to the County's zoning ordinance.

The project is located on 5 privately owned legal parcels zoned General Agricultural with Geothermal Overlay (A-2-G). Pursuant to Title 9, Division 5, Chapter 8 (County of Imperial 2019a), the following uses are permitted in the A-2 zone subject to approval of a CUP from Imperial County: solar energy electrical generator, battery storage facility, electrical substations, communication towers, and facilities for the transmission of electrical energy.

As demonstrated in Table 3.5-3 and discussed further in Section 3.11 Land Use Planning, with approval of a CUP, General Plan Amendment, and Zone Change, 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 is required.

Impact 3.5-6 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 located within the designated boundaries of the Desert Renewable Energy Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP). However, the project is not located within or adjacent to an Area of Critical Environmental Concern. Implementation of the proposed project would result in no impact associated with the potential to conflict with local conservation plans. No impact would occur.

Mitigation Measure(s)

No mitigation is required.

3.5.4 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. 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, decommissioning activities have the potential to directly impact special-status species. his is a potentially significant impact; however, implementation of Mitigation Measures BIO-1 through BIO-4 at the time of decommissioning would reduce impacts to a level less than significant.

Residual

The proposed project would not impact sensitive vegetation communities, state or federally-protected wetlands, would not conflict with any local policies or ordinances protecting biological resources and would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

With the implementation of Mitigation Measures BIO-1 through BIO-4, potential impacts to special-status species, including BOUW, mountain plover, and loggerhead shrike would be reduced to a level less than significant. Therefore, the project would not result in residual significant and unmitigable impacts related to biological resources.

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3.6 Cultural Resources

This section discusses 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 *Archaeological and Paleontological Assessment Report for the Brawley Solar Project* prepared by Chambers Group, Inc. This report is included in Appendix E of this EIR. The cultural resources inventory included a records search, literature review, and pedestrian survey.

3.6.1 Existing Conditions

Cultural Setting

Prehistory

The project site is located in the mid-section of the lower Colorado Desert, in which ancient Lake Cahuilla was situated – the present-day Salton Sea is illustrative of lower stands of the former Ancient Lake Cahuilla. In addition to paleontological potential, archaeological deposits found around the shoreline of Lake Cahuilla radiocarbon date to at least 1,440 years before present (B.P.) and shows demonstrable evidence of cultural activity in the area. Lake Cahuilla presented a massive freshwater oasis, allowing seasonal occupations resulting in archaeological deposits that include pottery, ground and chipped stone artifacts, and archaeological features such as rock fish traps. As an ethnographic landscape, the Cahuilla, Kumeyaay, Kamia, and the tribes which now comprise the Colorado River Indian Tribes (CRIT), the Mojave, Chemehuevi, Hopi, and Navajo settled in various locations around the basin, including the Colorado delta. Cultural resources located in the area tend to be associated with Lake Cahuilla due to its temporal context and functional use as a landscape, which yield archaeological data of high significance regarding how people adapted to the changing environment around the lake.

The three general time periods accepted in the region are the San Dieguito Complex, the Archaic period, and the Late Prehistoric period. These periods are briefly described below.

The earliest recognized occupation of the region, dating to 10,000 to 8,000 years B.P., is known as the San Dieguito complex. Assemblages from this occupation generally consist of flaked stone tools. Evidence of milling activities is rare for sites dating to this period. It is generally agreed that the San Dieguito complex shows characteristics of the Western Pluvial Lakes Tradition (WPLT), which was widespread in California during the early Holocene. The WPLT assemblage generally includes scrapers, choppers, and bifacial knives. Archaeologists theorize this toolkit composition likely reflects a generalized hunting and gathering society.

The following period, the Archaic (8,500 to 1,300 B.P.), is traditionally seen as encompassing both coastal and inland adaptations, with the coastal Archaic represented by the shell middens of the La Jolla complex and the inland Archaic represented by the Pauma complex. Coastal settlement is also thought to have been significantly affected by the stabilization of sea levels around 4,000 years ago that led to a general decline in the productivity of coastal ecosystems. Artifacts associated with this period include milling stones, unshaped manos, flaked cobble tools, Pinto-like and Elko projectile points, and flexed inhumations. Colorado Desert rock art studies have led researchers to suggest

Archaic-Period origins for many petroglyph and pictograph styles and elements common in later times. More recently, several important late Archaic-period sites have been documented in the northern Coachella Valley, consisting of deeply buried middens with clay-lined features and living surfaces, cremations, hearths, and rock shelters. Faunal assemblages show a high percentage of lagomorphs (rabbits and hares). The larger sites suggest a more sustained settlement type than previously known for the Archaic period in this area.

The Late Prehistoric period (1,300 to 200 B.P.) is marked by the appearance of small projectile points indicating the use of the bow and arrow, the common use of ceramics, and the general replacement of inhumations with cremations, all characteristic of the San Luis Rey complex. The San Luis Rey complex is divided temporally into San Luis Rey I and San Luis Rey II, with the latter distinguished mainly by the addition of ceramics. Along the coast of northern San Diego County, deposits containing significant amounts of Donax shell are now often assigned to the Late Prehistoric, based on a well-documented increase in the use of this resource at this time.

Ethnohistory

The project site was occupied by the Cahuilla, Quechan, Kumeyaay, Kamia, and the CRIT. The two closest tribal reservations to the project site are the Torres-Martinez Reservation located to northwest of the project site and Fort Yuma reservation located to the southeast of the project site. The Torres-Martinez Indian Reservation is currently home to the desert Cahuilla Indians and is on the northwest side of the Salton Sea, roughly 55 miles from the project site. Fort Yuma is located approximately 51 miles closer to the California-Arizona border and is the home of the Quechan. An ethnographic and archaeological summary of the Cahuilla, Quechan, Kumeyaay, Kamia, and CRIT is provided in Section 3.14, Tribal Cultural Resources of this EIR.

Regional History

The first significant European settlement of California began during the Spanish Period (1769 to 1821) when 21 missions and four presidios were established between San Diego and Sonoma. Although located primarily along the coast, the missions dominated economic and political life over the greater California region. The purpose of the missions was primarily for political control and forced assimilation of the Native American population into Spanish society and Catholicism, along with economic support to the presidios.

In the 1700s, due to pressures from other colonizers (Russians, French, British), New Spain decided that a party should be sent north with the idea of founding both military presidios and religious missions in Alta California to secure Spain's hold on its lands. The aim of the party was twofold. The first was the establishment of presidios, which would give Spain a military presence within its lands. The second was the establishment of a chain of missions along the coast slightly inland, with the aim of Christianizing the native population. By converting the native Californians, they could be counted as Spanish subjects, thereby bolstering the colonial population within a relatively short time.

The party was led by Gaspar de Portolá and consisted of two groups: one would take an overland route, and one would go by sea. All parties were to converge on San Diego, which would be the starting point for the chain of Spanish colonies. What became known as the Portolá Expedition set out on March 24, 1769. Portolá, who was very loyal to the crown and understood the gravity of his charge, arrived in what would become San Diego on July 1, 1769. Here, he immediately founded the presidio of San Diego. Leaving one group in the southern part of Alta California, Portolá took a smaller group and began heading north to his ultimate destination of Monterey Bay. Continuing up the coast, Portolá

established Monterey Bay as a Spanish possession on June 3, 1770, although it would take two expeditions to accomplish this task.

Having established the presidios at San Diego and Monterey, Portolá returned to Mexico. During the first four years of Spanish presence in Alta California, Father Junípero Serra, a member of the Portolá expedition and the Catholic leader of the new province, began establishing what would become a chain of 21 coastal missions in California. The first, founded concurrently at San Diego with the presidio, was the launching point for this group. During this time, four additional missions (San Carlos Borromeo de Carmelo, San Antonio de Padua, San Gabriel Arcángel, and San Luis Obispo de Tolosa) were established.

The Mexican Period (1821-1848) began with the success of the Mexican Revolution in 1821, but changes to the mission system were slow to follow. When secularization of the missions occurred in the 1830s, the missions' vast land holdings in California were divided into large land grants called ranchos. The Mexican government granted ranchos throughout California to Spanish and Hispanic soldiers and settlers. Even after the decree of secularization was issued in 1833 by the Mexican Congress, missionaries continued to operate a small diocesan church. In 1834, the San Gabriel Mission, including over 16,000 head of cattle, was turned over to the civil administrator.

In 1848, the Treaty of Guadalupe Hidalgo ended the Mexican American War and marked the beginning of the American Period (1848 to present). The discovery of gold that same year sparked the 1849 California Gold Rush, bringing thousands of miners and other new immigrants to California from various parts of the United States, most of whom settled in the northern part of the state. For those settlers who chose to come to southern California, much of their economic prosperity was fueled by cattle ranching rather than by gold. This prosperity, however, came to a halt in the 1860s because of severe floods and droughts, as well as legal disputes over land boundaries, which put many ranchos into bankruptcy.

Imperial County was formed in 1907 from a portion of San Diego County known as Imperial Valley and is the newest of California's counties. It is known for being one of California's most prosperous agricultural communities because of its vast canal systems stemming from the Colorado River. The first diversion of the Colorado River was in 1905 and continued through 1942 when the All-American Canal was completed. It is this water, conveyed from the Colorado River, that makes Imperial County so rich.

City of Brawley

Just as the Imperial Valley was starting to develop, a circular was released by the U.S. Government in 1902 claiming nothing would grow in this desert area, even with plentiful water. This now famous "libel" changed the name of Brawley, which was initially slated to be called Braly. A man named J.H. Braly from Los Angeles had underwritten shares of water stock and was assigned 4,000 acres of land at the center of the site where Brawley now stands. When Braly read this circular, he appealed to the Imperial Land Company to be released from his bargain. They told him they expected to build a city on his land and call it Braly. However, J.H. Braly wanted no part of it; he did not want his name connected with what he envisioned as a failure. George E. Carter, who was building the grade for the new railroad, heard of Braly's wish and took over Braly's contract for the 4,000 acres.

The Imperial Land Company got wind of the deal and sent emissaries to Carter, who sold out. Meanwhile, A.H. Heber (a principal in the townsite organizing company) had a friend in Chicago by the name of Brawley and suggested the town be called that name. The company ordered the new town platted in October of 1902. Brawley had a petition signed and was ready to incorporate in June

1907 but deferred the matter until the new Imperial County was formed out of a portion of San Diego County that year. Then in February 1908, a petition was filed, and Brawley was allowed to call an election. The vote was 34 to 22 in favor of incorporation.

For more than a century, Brawley has remained close to its roots of being a small, agricultural community. Many of its businesses cater to area farmers and ranchers who also call Brawley home. From the beginning, those who believed in Brawley were successful in creating imaginative ways to develop an oasis in what was once a hostile environment. Now as then, the town folk of Brawley pull together to create a united vision that is attractive to visitors, homeowners, consumers, developers and businesspeople alike. Incorporated in 1908, was a "tent city" of only 100 persons who were involved in railroads and the earliest introduction of agriculture. It had a population of 11,922 in 1950, but population growth was slow from the 1960s to the early 1990s.

Records Search

A records search dated October 14, 2020, was obtained from the South Coastal Information Center (SCIC) at San Diego State University. The records search provided information on all documented cultural resources and previous archaeological investigations within the 1-mile record search radius. Resources consulted during the records search conducted by the SCIC included the NRHP, California Historical Landmarks, California Points of Historical Interest, and the CRHR Inventory. Results of the records search and additional research are detailed below.

Previous Research

Based upon the records search conducted by the SCIC, 14 cultural resource studies have previously been completed within the 1-mile records search radius. Of the 14 previous studies, 9 of the studies were within the project site. A list of previous cultural resource studies within the 1-mile records search radius is provided in the *Archaeological and Paleontological Assessment Report for the Brawley Solar Project* (Appendix E of this EIR).

Previously Recorded Resources

Based upon the records search conducted by the SCIC, 5 previously recorded cultural resources were recorded within the 1-mile record search radius. Results show that none of the previously recorded resources are mapped within the project site boundaries. A list of previously recorded resources within the 1-mile records search radius is provided in the *Archaeological and Paleontological Assessment Report for the Brawley Solar Project* (Appendix E of this EIR).

Field Survey

A pedestrian survey was conducted on the project site between November 2 and 5, 2020. The purpose of the field survey was to visually inspect the ground surface for both paleontological and archaeologically significant materials. The archaeologists assessed the ground surface for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools), historic-period artifacts (e.g., metal, glass, ceramics), and sediment discoloration that might indicate the presence of a cultural midden, as well as depressions and other features indicative of the former presence of structures or buildings (e.g., post holes, foundations). When an artifact or feature was observed during survey, the GPS data were recorded using the ArcGIS Collector application; photographs and measurements were taken; and, when applicable, for historic glass artifacts, the maker's marks and date codes were recorded for further analysis and post-processing.

During completion of the survey, resource CA-IMP-08166H was relocated. Although not mapped within the actual project site boundaries, a segment of CA-IMP-08166H was relocated due to its bisecting position between the two adjacent project areas. Additionally, six newly recorded historic-period resources were identified (Table 3.6-1). The new historic-period resources were fully documented with the appropriate DPR 523 series forms for each of the new resources and will be submitted to the SCIC for inclusion in the archaeological database.

Table 3.6-1. Newly Identified Cultural Resources within the Project Site

Resource Name (Temporary)	Trinomial Number	Date Recorded	Age	Description	Recommended Evaluation
21267-001	Pending	November 2, 2020	Historic	Single-story residence	Recommended not eligible
21267-002	Pending	November 2, 2020	Historic	House/pads; glass and ceramic scatter	Not evaluated
21267-003 (Iso)	Pending	November 3, 2020	Historic	Green glass bottle base	Not evaluated
21267-004	Pending	November 5, 2020	Multi-component	Glass bottle, sanitary and food can scatter	Not evaluated
21267-005	Pending	November 5, 2020	Multi-component	Historic glass bottle, sanitary and food can scatter, modern refuse	Not evaluated
21267-006	Pending	November 5, 2020	Historic	Canals/water conveyance, part of irrigation district	Not evaluated

Source: Appendix E of this EIR

Historical Resources

Historical resources significant under CEQA include those designated or eligible for designation in the NRHP, the CRHR or other state program, or a local register of historical resources. Historical resources may also include resources listed in the State Historic Resources Inventory as significant at the local level or higher, and resources evaluated as potentially significant in a survey or other professional evaluation.

As shown in Table 3.6-1, a total of 6 cultural resources were identified within the project site: four historic-period and two multi-component sites. Five of the resources have yet to be evaluated. A detailed description of these five resources is provided in the *Archaeological and Paleontological Assessment Report for the Brawley Solar Project* (Appendix E of this EIR).

Resource 21267-001 was evaluated and not recommended eligible for designation in the NRHP, the CRHR or other state program, or a local register of historical resources. The NRHP and CRHR eligibility criteria are described below.

- **NRHP Eligibility Criteria.** Four criteria have been established to determine if a resource is significant to American history, architecture, archaeology, engineering, or culture and should be listed in the NRHP. These criteria include:

    A. It is associated with events that have made a significant contribution to the broad patterns of our history;

    B. It is associated with the lives of persons significant in our past;

    C. It embodies the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and

    D. It yields, or may be likely to yield, information important in prehistory or history.

- **CRHR Eligibility Criteria.** For the purposes of CEQA review, a historical resource is defined as follows (14 CCR 15064.5[a]):

    1. A resource listed in, or determined eligible by the State Historical Resources Commission for listing in, the California Register of Historical Resources (CRHR)

    2. A resource included in a local register of historical resources

    3. A resource identified as significant in a historical resource survey meeting the requirements specified in PRC 5024.1(g)

    4. Any resource that the lead agency determines to be historically significant

Site 21267-001

Site 21267-001 is a historic farm/ranch complex, including a single-story house, numerous miscellaneous outbuildings, and a fenced area on the east side of the property. The farm/ranch is located at 5003 N Best Avenue, Brawley, CA 92227, at the northwest corner of N Best Avenue and Ward Road, which runs parallel to the east-west Livesley Drain. The complex is in the southeastern most location within the project site boundaries and is bordered to the north and northwest by agricultural fields. The complex is visible as early as 1945 on the USGS map and 1953 in aerial imagery. The house and associated structures are still present. The building appears to correspond to typical minimal traditional style of form and construction, resting on a perimeter foundation of poorly consolidated concrete made with local materials. Wood joists are noted in the interior where exposed, suggesting a post-and-pier foundation for the floor of the building. The outline is a simple rectangle with a low, gabled roofline and minimal pitch. Roof eaves minimally extend, with boxed in soffits. The exterior is treated in stucco, using techniques typical of the period; tarpaper wrap, with wire mesh, a brown/scratch coat, and a finish coat. There are several wood-trimmed piercings for wood-cased double-sash windows. Cast-iron waste pipes are embedded into the exterior surface along one wall.

Several outbuildings are present, but their function remains unknown at this time. These are wood-framed and sided, and most are in a state of collapse or disrepair. Construction techniques and the greater fullness of the dimensions of the dimensional lumber suggest that these buildings are contemporaneous with the main residential building.

ELIGIBILITY CONSIDERATION

Site 21267-001 was evaluated in March 2021 by Chambers Group. Based on the evaluation of the residence, either as a complex or as individual structures, none of the four criteria are met for inclusion in the CRHR and the resource is recommended not eligible.

Criterion 1: This resource does not meet the criteria under Criterion 1 as it is not associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States. Therefore, this resource is recommended not eligible for the CRHR under Criterion 1.

Criterion 2: This resource does not meet Criterion 2 as it is not associated with the lives of persons who are important to local, California history. While research has yielded information to suggest that one of the original land patent holders, Thomas A. Livesley, was fairly prominent in Salem, Oregon, neither he nor his family, or those also listed on the 1911 land patent, were specifically associated with Brawley or Imperial Valley, California history. There is no evidence that Mr. Livesley or his family ever resided at 5003 N Best Avenue and were not mentioned as being influential in literature regarding the Imperial Irrigation District between the 1900s and 1940s or the history of Imperial Valley between the 1900s and 1930s (Dowd 1956; Tout 1931). It is likely that Mr. Livesley and the other parties listed on the land patent were involved in speculative agriculture but were not personally invested in the overall development of Brawley or within Imperial Valley.

Additionally, there is no evidence that the subsequent property titles holders, namely the Flammangs, were of particular significance in Brawley. The Flammangs were owners of a few farms over the decades, but there is no documentation stating any noteworthy influence in Brawley, Imperial Valley, or California. Therefore, this resource is recommended not eligible for the CRHR Criterion 2.

Criterion 3: This resource does not meet Criterion 3 for embodying the distinctive characteristics of a type, period, or method of construction; or as a representative work of a master; or for possessing high artistic values. represent a very common property type throughout the United States, California, and San Diego. Many Traditional Style residences were constructed throughout the United States during the twentieth century and these examples are neither unique nor innovative for the period in which they were constructed. Therefore, this resource is recommended not eligible for the CRHR under Criterion 3.

Criterion 4: This resource does not meet Criterion 4 since it is unlikely to yield information important to prehistory or history. It is unlikely that this property has the potential to broaden our understanding of the history of the United States, California, or San Diego during the twentieth century. Therefore, this resource is recommended not eligible for the CRHR under Criterion 4.

3.6.2 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.

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).

(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

[1] Ibid.

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."

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 3.6-2.

Table 3.6-2. 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 inventory was prepared for the project area. Known archaeological resources within the project area 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 Measure CUL-1 and CUL-2 would require a supervising monitor to monitor all ground disturbing activity and to provide WEAP training to workers to reduce potential impacts on historical resources to a level less than significant. Implementation of Mitigation Measures CUL-3, CUL-4, and CUL-5 would reduce the potential impact associated with the inadvertent discovery of archaeological resources to a level less than significant. At the completion of construction, an Archaeological Resources Monitoring Report will be prepared to summarize all monitoring efforts and observations, as performed, and all prehistoric or historic archaeological finds per Mitigation Measure CUL-6. Mitigation Measure CUL-7 would ensure that the potential impact on previously unknown human remains does not rise to the level of significance pursuant to CEQA.
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:
CUL=cultural; WEAP= Worker Environmental Awareness Program

3.6.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering proposed project impacts related to cultural and archeological 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 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

Methodology

This analysis evaluates the potential for the proposed project, as described in Chapter 2, Project Description, to interact with cultural resources in the project area. 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, the *Archaeological and Paleontological Assessment Report for the Brawley Solar Project* (Appendix E of this EIR) was prepared for the project. The cultural resources inventory provides the results of a SCIC records search and a field survey which have been completed for the project area pursuant to CEQA.

The information from the cultural resources inventory 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 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

Impact 3.6-1 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 3.6-1, six newly recorded cultural resources were identified within the project site during field surveys. Newly identified cultural resources comprise both historic-period and two multi-component sites. Resource 21267-001 is recommended not eligible for listing and the other five resources have not been formally evaluated for potential eligibility for listing in the CRHR. The project applicant will avoid ground-disturbing activities within and in close proximity to these resources. However, if-ground disturbing activities must occur within and in close proximity to these resources, a significant impact may potentially occur. Mitigation Measure CUL-1 and CUL-2 would involve retaining a Qualified Archaeologist to monitor ground disturbing work and provide WEAP training to construction personnel If ground disturbing activities encounter unanticipated discoveries that are potentially significant historical resources pursuant to CEQA. Mitigation Measures CUL-3, CUL-4, and CUL-5 would require construction to be halted in the area surrounding the discovery so that the Qualified Archaeologist can conduct formal site evaluations to assess whether resource(s) are potentially eligible for listing in the CRHR. At the completion of construction, an Archaeological Resources Monitoring Report will be prepared to summarize all monitoring efforts and observations, as performed, and all prehistoric or historic archaeological finds per Mitigation Measure CUL-6. Implementation of Mitigation Measures CUL-1 through CUL-6 would reduce potential impacts associated with cultural resources to a level less than significant.

Mitigation Measure(s)

CUL-1 **Cultural Monitoring.** Prior to construction, the project Applicant shall retain the services of a Qualified Professional Archaeologist meeting the Secretary of the Interior's Standards for a Qualified Archaeologist and require that all initial ground-disturbing work be monitored by someone trained in artifact and feature identification in monitoring contexts. A Supervising Archaeological Specialist and a Paleontological Monitor, to be retained by the project applicant, will be required to be present at the project construction phase kickoff meeting.

CUL-2 **Worker Environmental Awareness Program.** Prior to any ground disturbance, the supervising Archaeological Resources Specialist and Archaeological Resources Monitor shall conduct initial Worker Environmental Awareness Program (WEAP) training to all construction personnel, including supervisors, present at the outset of the project construction work phase, for which the Lead Contractor and all subcontractors shall make their personnel available. This WEAP training will educate construction personnel on how to work with the monitor(s) to identify and minimize impacts to paleontological resources and maintain environmental compliance and be performed periodically for new personnel coming on to the project as needed.

CUL-3 **Discovery of Previously Unidentified Archaeological Materials.** In the event of the discovery of previously unidentified archaeological materials, the construction contractor shall immediately cease all work activities within approximately 100 feet of the discovery. After cessation of excavation, the construction 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 project 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 project Applicant shall implement an archaeological data recovery program.

CUL-4 **Schedule of Ground-Disturbing Activities.** The construction contractor shall provide the Supervising Archaeological Resources Specialist with a schedule of initial potential ground-disturbing activities. A minimum of 48 hours will be provided of commencement of any initial ground-disturbing activities such as vegetation grubbing or clearing, grading, trenching, or mass excavation.

As detailed in the schedule provided, an Archaeological Monitor shall be present on site at the commencement of ground-disturbing activities related to the project. The monitor, in consultation with the Supervising Archaeologist, shall observe initial ground-disturbing activities and, as they proceed, make adjustments to the number of monitors as needed to provide adequate observation and oversight. All monitors will have stop-work authority to allow for recordation and evaluation of finds during construction. The monitor will maintain a daily record of observations to serve as an ongoing reference resource and to provide a resource for final reporting upon completion of the project.

The Supervising Archaeologist, Archaeological Monitor, and the lead contractor and subcontractors shall maintain a line of communication regarding schedule and activity such that the monitor is aware of all ground-disturbing activities in advance in order to provide appropriate oversight.

CUL-5 **Discovery of Archaeological Resources.** If archaeological resources are discovered, construction shall be halted within 50 feet of the find and shall not resume until a Qualified Archaeologist can determine the significance of the find and/or the find has been fully investigated, documented, and cleared.

CUL-6 **Archaeological Resources Monitoring Report.** At the completion of all ground-disturbing activities, the Qualified Archaeologist shall prepare an Archaeological Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the South Coastal Information Center (SCIC), as required.

Significance After Mitigation

With the implementation of Mitigation Measures CUL-1 through CUL-6, impacts to potential historical resources during construction would be reduced to a level less than significant by requiring construction monitoring, WEAP training, and proper handling and documentation of previously undiscovered historic resources.

Impact 3.6-2 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 3.6-1. If an archaeological site does not meet any of the criteria outlined in the provisions under Impact 3.6-1, 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.

Based on the field survey conducted for the project, much of the proposed project survey area was vegetated by agricultural fields while others were in areas previously disturbed for placement of water channels and culverts for agricultural purposes. The disturbed surface and subsurface of the project area from agricultural activity and construction of channels and culverts have likely destroyed any intact potential prehistoric or historic-era cultural resources. 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 CUL-1 through CUL-6 would reduce the potential impact associated with the inadvertent discovery of archaeological resources to a level less than significant.

Impact 3.6-3 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 construction. The potential to encounter human remains is considered a significant impact. Mitigation Measure CUL-7 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)

CUL-7 **Discovery of Human Remains.** In the unlikely event that human remains are discovered during ground-disturbing activities, then the proposed project would be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California Public Resources Code Section 5097.98 (NPS 1983). If human remains are found during ground-disturbing activities, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Imperial County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the Imperial County Coroner shall be notified immediately. If the human remains are determined to be prehistoric, the County Coroner shall notify the NAHC, which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

Significance After Mitigation

With the implementation of Mitigation Measure CUL-7, potential impacts from encountering human remains during ground-disturbing construction activities would be reduced to a level than significant with adherence to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California Public Resources Code Section 5097.98 (NPS 1983).

3.6.4 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. 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 proposed project.

Residual

Implementation of Mitigation Measure CUL-1 and CUL-2 would require a supervising monitor to monitor all ground disturbing activity and to provide WEAP training to workers to reduce potential impacts on historical resources to a level less than significant. Implementation of Mitigation Measures CUL-3, CUL-4, and CUL-5 would reduce the potential impact associated with the inadvertent discovery of archaeological resources to a level less than significant. At the completion of decommissioning construction activities, an Archaeological Resources Monitoring Report will be prepared to summarize all monitoring efforts and observations, as performed, and all prehistoric or historic archaeological finds per Mitigation Measure CUL-6. Mitigation Measure CUL-7 would ensure that the potential impact on previously unknown human remains does not rise to the level of significance pursuant to CEQA. No unmitigable impacts on cultural resources would occur with implementation of the proposed project.

3.7 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 *Geotechnical Feasibility Study* prepared by Chambers Group (Appendix F of this EIR) and the *Archaeological and Paleontological Assessment Report for the Brawley Solar Project* prepared by Chambers Group (Appendix E of this EIR).

3.7.1 Existing Conditions

Regional Geology

The project site is located in Imperial County in the Salton Trough geomorphic province of California. The Salton Trough encompasses the Coachella, Imperial and Mexicali Valley which extend from northeast of Palm Springs near San Gorgonio Pass to the Gulf of California. The Imperial Valley is bounded by the Chocolate Mountains to the northeast, the Salton Sea to the north, the Peninsular Ranges to the Southwest, and Mexicali Valley to the south, and is dominated by lacustrine and alluvial sediments. Unexposed succession of Tertiary- and Quaternary-aged sedimentary rocks lie below the alluvial and lake sediments from depths of 11,000 feet or more. Basement rocks consisting of Mesozoic granite and probably Paleozoic metamorphic rocks are estimated to exist at depths between 15,000 and 20,000 feet (Appendix F of this EIR).

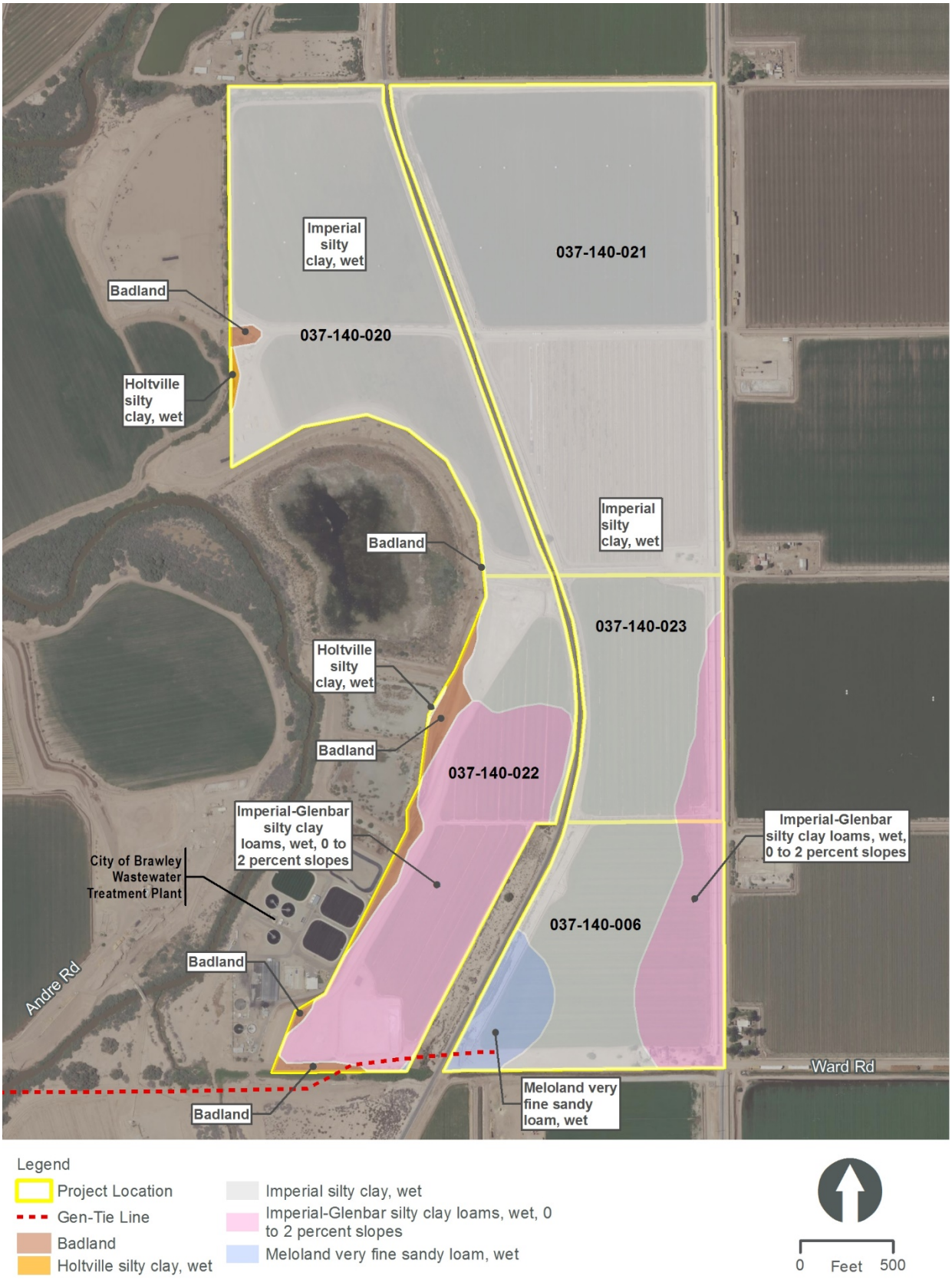
The geologic conditions present within the County contribute to a wide variety of hazards that can result in loss of life, bodily injury, and property damage. The primary seismic hazard at the project site is the potential for strong ground shaking. The Salton Trough is a seismically active area and the Imperial Valley in particular has numerous northwest-treading active faults.

Local Geology and Surface Conditions

The project site is generally within the floodplain of the New River and underlain by Quaternary Lake Deposits. The Western Boundary of the project site which has a descending slope is the former bank of the New River. The surface of the project site is observed to contain a topsoil/tilled horizon related to previous agricultural usage of the project site, and minor amounts of undocumented artificial fill related to the boundary roads and paths, adjacent drainage channels, and the railway that bisects the site. The fill in these areas include local lean, to fat clay derived from the native lake deposits. The dominant geologic unit below the project site is young lake deposits which consist of silts and clays with occasional interbeds of silty sand (Appendix F of this EIR). As shown on Figure 3.7-1, soil series mapped on the project site include:

- 102 Badland
- 110 Holtville silty clay, wet
- 114 Imperial silty clay, wet
- 115 Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes
- 122 Meloland very fine sandy loam, wet

Figure 3.7-1. Soils Mapped on the Project Site



Groundwater Conditions

Groundwater was encountered at approximately 42 feet below the existing grade in the western end of the project site, and perched groundwater was encountered at approximately 12 feet below grade in the northeast corner of the site. Within the project site, water is channeled within the drainage ditches and channels along the northern and southern property lines just below surface elevation. Additionally, six geothermal wells are present throughout the site.

Faulting and 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.

Southern California straddles the boundary between two global tectonic plates known as the North American Plate (on the east) and the Pacific Plate (on the west). The main plate boundary is represented by the San Andreas Fault, which extends northwest from the Gulf of California in Mexico, through the desert region of the Imperial Valley, through the San Bernardino region, and into Northern California, where it eventually trends offshore, north of San Francisco (Appendix F of this EIR).

In Southern California, the plate boundary is a complex system of numerous faults known as the San Andreas Fault System that spans a 150-mile-wide zone from the main San Andreas fault in the Imperial Valley westward to offshore of San Diego. As shown in Figure 3.7-2, the closest active faults to the project site include: the Brawley Seismic Zone which is approximately 2.4 miles to the west, the Imperial Fault which is approximate 8.3 miles to the south, the Superstition Hills Fault which is approximately 11.9 miles to the southwest, the Superstition Mountain Fault which is approximately 14.5 miles to the southwest, the Elmore Ranch Fault which is approximately 15.8 miles to the west, and the San Andreas Fault which is 25.5 miles to the northwest (Appendix F of this EIR).

The project site is within an active tectonic area with several significant faults that are capable of producing moderate to strong earthquakes. The Imperial Fault, Superstition Hills Fault, and Superstition Mountain Fault are the three closest faults to the project site. Based on probabilistic analysis from the California Geological survey website, the peak ground acceleration at the project site is estimated to be approximated 0.48g, based on a probability of 10 percent in 50 years (Appendix F of this EIR).

Seismic 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 at the project site during moderate to severe earthquakes in the general region.

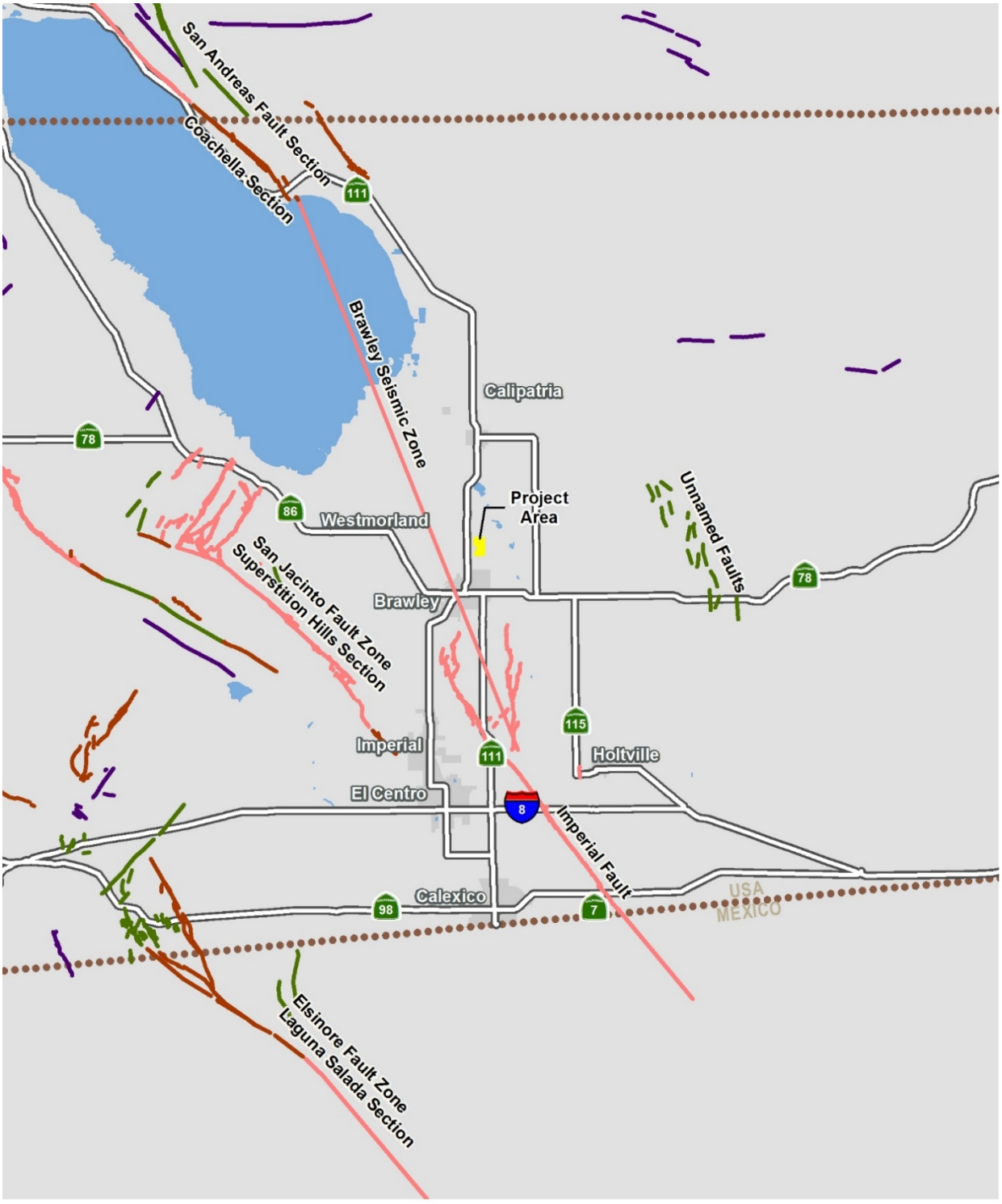
Surface Rupture

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 California Geologic Survey (CGS) established criteria for faults as active, potentially active, and inactive. Active faults are those that show evidence of surface displacement within the last 11,000 years (Holocene age). Potentially active faults are those that demonstrate displacement within the past 1.6 million years (Quaternary age). Faults showing no evidence of displacement within the last 1.6 million years may be, in general, considered inactive for most structures, except for critical structures (Appendix F of this EIR).

In 1972 the Alquist-Priolo Special Studies Earthquake Hazards Act (APEHA) was passed, which required fault studies within 500 feet of active or potentially active faults. The APEHA designates “active” and “potentially active” faults utilizing the same age criteria as that used by the CGS. The project site is not located within a currently mapped APEHA zone. As previously mentioned above, the nearest active major fault is the Brawley Seismic Zone which is approximately 2.4 miles to the west of the project site (Appendix F of this EIR). Based on this distance, the potential for surface fault rupture to occur on the project site is considered low.

Figure 3.7-2. Regional Fault Map



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). The factors known to influence liquefaction potential include soil type, relative density, grain size distribution, confining pressure, depth to groundwater, and the intensity and duration of the seismic ground shaking. Liquefaction is most prevalent in loose- to medium-dense, silty, sandy, and gravelly soils below the groundwater table.

The predominate soil type encountered in the borings include fine-grained silts and clays. Based on site observation of the soil encountered during drilling for exploratory borings and the lack of shallow groundwater table, the potential for liquefaction at the project site is considered to be very low. (Appendix F of this EIR).

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 has a relatively flat topography; therefore, the potential for landsliding is considered negligible (Appendix F of this EIR). Additionally, according to the County of Imperial General Plan, Seismic and Public Safety Element (County of Imperial 1997a), the project site is not within an area with moderate or low potentials for landslides.

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. Based on the site conditions and gentle to relatively flat topography across the majority of the project site, lateral spreading is considered unlikely (Appendix F of this EIR).

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. Based on the site conditions and gentle to relatively flat topography across the majority of the project site, ground subsidence is considered unlikely (Appendix F of this EIR).

Expansive Soils

Expansive soils are characterized by their ability to undergo significant volume changes (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from precipitation, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or

other factors and may result in unacceptable settlement or heave of structures. Expansive soils are known to be present throughout the Imperial Valley and based on preliminary laboratory testing, medium to highly expansive soils were encountered within the upper 5 feet of the project site. As previously stated, the project site is predominately underlain by fine-grained silts and clays. Generally, sands are considered not expansive while soils and clays may exhibit moderate to high expansion potential due to variation in moisture content (Appendix F of this EIR).

Collapsible Soils

Collapsible soil is generally defined as soil that will undergo a sudden decrease in volume and its internal support is lost under applied loads when water is introduced into the soil. The internal support is considered to be a temporary strength and is derived from a number of sources including capillary tension, cementing agents, e.g. iron oxide and calcium carbonate, clay-welding of grains, silt bonds, clay bonds and clay bridges. Soils found to be most susceptible to collapse include loess (fine grained wind-deposited soils), valley alluvium deposited within a semi-arid to arid climate, and residual soil deposits. It is unknown whether collapsible soils are present on the project site.

Corrosive Soils

Corrosive soils can damage underground utilities including pipelines and cables, or weaken roadway structures. Based on screening tests conducted on a representative sample of near surface soils, severely corrosive soils to both concrete material and metallic elements are present (Appendix F of this EIR).

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.

Late Pleistocene to Holocene Lake Cahuilla deposits exposed and/or underlying the proposed project area consist of dark brown to gray, silty clays interpreted as freshwater lacustrine; and, in drainages where exposed, these same sediments are interbedded with finer to medium sands containing pebbles. The Lake Cahuilla Beds have yielded well-preserved subfossil remains of freshwater clams and snails and sparse remains of freshwater fish. The paleontological resources of the Lake Cahuilla Beds are considered significant because of the paleoclimatic and palaeoecological information they can provide, and these deposits are therefore assigned a high paleontological potential. Therefore, although no paleontological resources were discovered during the survey within exposed cuts, the site does have paleontological sensitivity, with high potential for paleontological resource discovery (Appendix E of this EIR).

3.7.2 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 Earthquake Hazards Act

The APEHA was passed into law following the destructive February 9, 1971 San Fernando earthquake. The APEHA provides a mechanism for reducing losses from surface fault rupture on a statewide basis. The intent of the APEHA 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. The project site is not located within a currently mapped APEHA zone.

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 updates to the 2019 California Building Standards Code were published on January 1, 2021, with an effective date of July 1, 2021.

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 3.7-1 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 3.7-1. 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 15 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 0.48 gravity. It should be noted
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.		

Table 3.7-1. Project Consistency with Applicable General Plan Policies

General Plan Policies	Consistency with General Plan	Analysis
Objective 1.7. Require developers to provide information related to geologic and seismic hazards when siting a proposed project.		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 study has been prepared for the proposed project. The preliminary geotechnical study has been referenced in this environmental document. Additionally, a design-level geotechnical investigation will be conducted to evaluate the potential for site specific hazards associated with seismic activity.
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.		

Source: County of Imperial 1997

3.7.3 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, as well as paleontological resources on the project site. A *Geotechnical Feasibility Study* prepared by Chambers Group (Appendix F of this EIR) and *Archaeological and Paleontological Assessment Report for the Brawley Solar Project* prepared by Chambers Group (Appendix E of this EIR) was prepared for the project. The information obtained from these studies were reviewed and summarized to present the existing geologic and soil conditions on the project site. 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

Impact 3.7-1 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)?

As previously discussed above, 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 Figure 3.7-2, the project site is not located on an active fault. Furthermore, no portion of the project site is within or near a designated APEHA zone, and, therefore, the potential for ground rupture to occur within the project site is considered unlikely. As such, the probability of surface fault rupture within the project site during construction and operation is considered low and the project would not increase or exacerbate existing hazards related to fault rupture. The proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving rupture of a major fault as delineated on the most recent Alquist-Priolo Fault Zoning map. This impact would be less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.7-2 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 fault to the project site is the Brawley Seismic Zone which is approximately 2.4 miles to the west. In the event of an earthquake along this fault or another regional fault, 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 that are designed to resist the effects of strong ground motion, 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 result in 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. However, the proposed project would be constructed in accordance with the applicable geotechnical and seismic design standards as well as the site-specific design recommendations in the final geotechnical report per Mitigation Measure GEO-1; and upon operation, the project would not result in any significant changes related to the risk of seismic hazards on the project site when compared to existing conditions, nor would project operation increase or exacerbate the potential for strong seismic ground shaking to occur. Impacts would be 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 level less than significant 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 3.7-3 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, the factors known to influence liquefaction potential include soil type, relative density, grain size distribution, confining pressure, depth to groundwater, and the intensity and duration of the seismic ground shaking. Liquefaction is most prevalent in loose- to medium-dense, silty, sandy, and gravelly soils below the groundwater table.

The predominate soil type encountered in the borings include fine-grained silts and clays. Based on site observation of the soil encountered during drilling for exploratory borings, the potential for liquefaction at the project site is considered to be very low (Appendix F of this EIR). However, given that the project site is underlain by fine-grained silts and clays, there is a potential for liquefaction to occur on the project site. Additional geotechnical investigation would be required in order to assess the risk of liquefaction on the project site. The potential impact on liquefaction is considered a significant impact**.** Implementation of Mitigation Measure GEO-1, which requires the preparation of a design-level geotechnical report, would reduce the potential impact associated with liquefaction to a level less than significant.

Mitigation Measure(s)

No additional mitigation measures beyond Mitigation Measure GEO-1 are required.

Significance after Mitigation

With implementation of Mitigation Measure GEO-1, potential impacts associated with seismic ground failure such as liquefaction would be reduced to a level less than significant 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 3.7-4 Would the project directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving:

Landslides?

Along the western boundary of the project site, there is a descending slope where there is a potential for general slope instability. The southern portion of this slope does appear to have been recently graded while the northern portion appears to be natural and in a somewhat over-steepened condition. Minor slumping was also observed within localized areas of this natural descending slope, as well as several areas that were heavily eroded. However, as stated above, the project site has a relatively flat topographic gradient to the north, east, and west of the site; and runoff water is allowed to freely drain over the top of the observed slope. Based on these factors the potential for a landslide is considered negligible (Appendix F of this EIR). Therefore, the project would not directly or indirectly cause potential substantive adverse effects, including the risk of loss, injury, or death involving landslides and no impact would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.7-5 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 will involve demolition and grubbing, grading of the project site to establish access roads and pads for electrical equipment, trenching for underground electrical collection lines, and the installation of solar equipment and security fencing which could result in increased erosion and sedimentation to surface waters. Construction could produce sediment-laden stormwater runoff (nonpoint source pollution), a major contributor to the degradation of water quality. If precautions are not taken to contain contaminants, construction-related erosion impacts are considered a significant impact.

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 3.10 Hydrology/Water Quality, potential impacts from erosion during construction activities would be reduced to a level less than significant with the preparation of a SWPPP for sediment and erosion control and implementation of BMPs to reduce erosion from the construction site.

The project is not expected to result in substantial soil erosion or the loss of topsoil over the long term. 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 Measure GEO-1 and Mitigation Measure HYD-1 identified in Section 3.10 Hydrology/Water Quality, impacts from construction-related erosion would be reduced to a level less than significant.

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 3.10 Hydrology/Water Quality, potential impacts from erosion during construction activities would be reduced to a level less than significant with the preparation of a SWPPP and implementation of BMPs to reduce erosion from the construction site.

Impact 3.7-6 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?

Based on the site conditions and gentle to relatively flat topography across the majority of the project site, lateral spreading is considered unlikely. However, additional geotechnical investigation would be required in order to assess the risk of lateral spreading to occur on the project site. The potential impact associated with lateral spreading is considered a significant impact**.**

The general project area is not experiencing subsidence which it typically attributed to the extraction of groundwater. The proposed project facility is not expected to exacerbate or otherwise trigger significant subsidence; however, there are six geothermal wells on the project site that could potentially result in subsidence if large quantities of ground water are extracted, lowering the water table. Therefore, further geotechnical investigation would be required in order to address the issue of potential subsidence related to the operation of these geothermal wells. The potential impact associated with lateral spreading is considered a significant impact**.**

As described above, given that the project site is predominately underlain by fine-grained silts and clays and based on site observation of the soil encountered during drilling for exploratory borings and the lack of shallow groundwater table, the potential for liquefaction at the project site is considered to be very low. Additional geotechnical investigation would be required in order to assess the risk of liquefaction on the project site. The potential impact on liquefaction is considered a significant impact**.**

It is unknown whether collapsible soils are present on the project site. Additional geotechnical investigation would be required in order to assess the risk of collapsible soils to occur on the project site. The potential impact associated with collapsible soils is considered a significant impact**.**

Implementation of Mitigation Measure GEO-1, which requires the preparation of a design-level geotechnical report, would reduce the potential impacts associated with lateral spreading, liquefaction, and collapsible soils to a level less than significant.

Mitigation Measure(s)

No additional mitigation measures beyond Mitigation Measure GEO-1 are required.

Significance after Mitigation

With implementation of Mitigation Measure GEO-1, potential impacts associated with lateral spreading, liquefaction, and collapsible soils would be reduced to a level less than significant 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 3.7-7 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?

As stated above, expansive soils are characterized by their ability to undergo significant volume changes (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from precipitation, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors and may result in unacceptable settlement or heave of structures. The project site is predominately underlain by fine-grained silts and clays. According to Section 1803.5.3 of the 2010 CBC, these soils should be considered "expansive." Further, based on preliminary laboratory testing, medium to highly expansive soils were encountered within the upper 5 feet of the project site.

Therefore, unless properly mitigated, shrink-swell soils could exert additional pressure on buried structures and electrical connections producing shrinkage cracks that could allow water infiltration and compromise the integrity of backfill material. These conditions could be worsened if structural facilities are constructed directly on expansive soil materials. This potential impact would be significant as structures could be damaged by these types of soils.

Additionally, based on screening tests conducted on a representative sample of near surface soils, it was found that the soils contain a water-soluble sulfate content of 0.27 percent; therefore, a severe exposure to sulfates may be expected for concrete placed in contact with soil materials. Careful control of water-cement ratio and concrete compressive strength will be necessary in order to provide proper resistance again concrete deteriorate from sulfates. Further, the on-site soils, particularly clay/silty clay, are severely corrosive to ferrous metals and copper and can damage underground utilities including pipelines and cables or weaken roadway structures. Therefore, any ferrous metal or copper components of proposed project features that would be buried in direct contact with the site's soil would also need to be protected against detrimental effects of severely corrosive soil materials. A site-specific geotechnical investigation would be required at the project site to determine the extent and effect of problematic soils which have been identified during preliminary laboratory screenings of near surface on-site soils. Implementation of Mitigation Measure GEO-1, which requires the preparation of a design-level geotechnical report, would reduce potential impacts associated with expansive and corrosive soils to a level less than significant.

Mitigation Measure(s)

No additional mitigation measures beyond Mitigation Measure GEO-1 are required.

Impact 3.7-8 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 3.7-9 Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The Lake Cahuilla Beds have yielded well-preserved subfossil remains of freshwater clams and snails and sparse remains of freshwater fish. The paleontological resources of the Lake Cahuilla Beds are considered significant because of the paleoclimatic and palaeoecological information they can provide, and these deposits are therefore assigned a high paleontological potential. Therefore, the project site is considered to be paleontologically sensitive with a high potential for paleontological resource discovery (Appendix E of this EIR). Project construction has the potential to unearth and/or potentially destroy previously undiscovered paleontological resources. This potential impact is considered a significant impact. However, implementation of Mitigation Measures GEO-2, through GEO-7 would reduce the potential impact on paleontological resources to a level less than significant.

Mitigation Measure(s)

GEO-2 **Paleontological Mitigation and Monitoring Plan.** Once a geotechnical report has been completed for the project, a qualified paleontologist shall review the boring logs and determine how deep paleontologically sensitive formations may be across the project site. The paleontologist shall use this information along with the results of the paleontological survey to determine if paleontological monitoring is warranted. If monitoring is warranted, a qualified paleontologist shall prepare a mitigation and monitoring plan to be implemented during project construction.

GEO-3 **Paleontological Monitoring.** Prior to construction, the project applicant shall retain the services of a Qualified Paleontologist and require that all initial ground-disturbing work be monitored by someone trained in fossil identification in monitoring contexts. A Supervising Paleontological Specialist and a Paleontological Monitor, to be retained by the project applicant, will be required to be present at the project construction phase kickoff meeting.

GEO-4 **Worker Awareness Program.** Prior to any ground disturbance, the Supervising Paleontological Resources Specialist and Paleontological Resources Monitor shall conduct initial Worker Environmental Awareness Program (WEAP) training to all construction personnel, including supervisors, present at the outset of the project construction work phase, for which the Lead Contractor and all subcontractors shall make their personnel available. This WEAP training will educate construction personnel on how to work with the monitor(s) to identify and minimize impacts to paleontological resources and maintain environmental compliance and be performed periodically for new personnel coming on to the project as needed.

GEO-5 **Schedule of Ground-Disturbing Activities.** During construction, the construction contractor shall provide the Supervising Paleontological Resources Specialist with a schedule of initial potential ground-disturbing activities. A minimum of 48 hours will be provided of commencement of any initial ground-disturbing activities such as vegetation grubbing or clearing, grading, trenching, or mass excavation.

As detailed in the schedule provided, a Paleontological Monitor shall be present on site at the commencement of ground-disturbing activities related to the project. The monitor, in consultation with the Supervising Paleontologist, shall observe initial ground-disturbing activities and, as they proceed, make adjustments to the number of

monitors as needed to provide adequate observation and oversight. All monitors will have stop-work authority to allow for recordation and evaluation of finds during construction. The monitor will maintain a daily record of observations to serve as an ongoing reference resource and to provide a resource for final reporting upon completion of the project.

The Supervising Paleontologist, Paleontological Monitor, and the Lead Contractor and subcontractors shall maintain a line of communication regarding schedule and activity such that the monitor is aware of all ground-disturbing activities in advance in order to provide appropriate oversight.

GEO-6 **Discovery of Paleontological Resources.** During construction, if paleontological resources are discovered, construction shall be halted within 50 feet of any paleontological finds and shall not resume until a Qualified Paleontologist can determine the significance of the find and/or the find has been fully investigated, documented, and cleared.

GEO-7 **Paleontological Resources Monitoring Report.** At the completion of all ground-disturbing activities, the Supervising Paleontological Specialist shall prepare a Paleontological Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all paleontological finds.

Significance after Mitigation

Implementation of Mitigation Measures GEO-2 through GEO-7 would reduce the potential impact on paleontological resources to a level less than significant. 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.

3.7.4 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. 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, impacts related to strong seismic ground shaking, liquefaction, lateral spreading, collapsible soils, expansive soils, and corrosive soils would be reduced to a level less than significant. With implementation of Mitigation Measure GEO-1 and Mitigation Measure HYD-1 in Section 3.10 Hydrology/Water Quality, potential impacts from erosion during construction activities would be reduced to a level less than significant. Implementation of Mitigation Measures GEO-2 through GEO-7 would reduce the potential impact on paleontological resources to

a level less than significant. The project would not result in residual significant and unmitigable impacts related to geology and soil resources.

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3.8 Greenhouse Gas Emissions

This section includes an overview of existing greenhouse gas (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 the CEQA Guidelines in conjunction with actions proposed in Chapter 2, Project Description. Information contained in this section is summarized from the *Air Quality, Energy, and Greenhouse Gas Emissions Impact – Brawley Solar Energy Facility Project* prepared by Vista Environmental. This report is included in Appendix C of this EIR.

3.8.1 Existing Conditions

Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHGs), play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the GHGs.

Water Vapor. Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher, leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere.

Carbon Dioxide. The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid-1700s, each of these activities has increased in scale and distribution. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of CO_2 in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This could result in an

average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit (Appendix C of this EIR).

Methane. CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and CFCs). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production. 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 methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide. N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N_2O is also commonly used as an aerosol spray propellant.

Chlorofluorocarbons. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons. Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons. Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays 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. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride. Sulfur Hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols. Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil

fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

Greenhouse Gas Emissions Inventory

In 2020, CARB released the 2020 edition of the California GHG inventory covering calendar year 2018 emissions. In 2018, California emitted 425.3 million gross metric tons of CO_2e including from imported electricity. The current inventory covers the years 2000 to 2018 and is summarized in Table 3.8-1. 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.

As shown in Table 3.8-1, combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2018, accounting for approximately 30 percent of total GHG emissions in the state.

Table 3.8-1. California Greenhouse Gas Emissions Inventory 2000 to 2018

Sector	Total 2000 Emissions ($MMTCO_2e$)	Total 2018 Emissions ($MMTCO_2e$)
Agriculture	30.97	32.57
Commercial and Residential	43.95	41.37
Electric Power	104.75	63.11
Industrial	96.18	89.18
Transportation	178.40	169.50
Recycling and Waste	7.67	9.09
High GWP Gases	6.28	20.46

Source: CARB 2020
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 U.S., 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).

3.8.2 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 U.S. EPA is developing regulations under the CAA to be adopted in the near future, pursuant to the U.S. EPA's authority under the CAA. Foremost amongst recent developments have been the settlement agreements between the U.S. EPA, several states, and nongovernmental organizations to address GHG emissions from electric generating units and refineries; the U.S. Supreme Court's decision in Massachusetts v. EPA; and U.S. EPA's "Endangerment Finding," "Cause or Contribute Finding," and "Mandatory Reporting Rule." On September 20, 2013, the U.S. EPA issued

a proposal to limit carbon pollution from new power plants. The U.S. 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 U.S. 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 U.S. EPA set GHG thresholds to define when permits under the New Source Review Prevention of Significant Deterioration standard and Title V Operating Permit programs are required for new and existing industrial facilities. In 2012, U.S. 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). In 2012, the U.S. EPA and NHTSA also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (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.

Assembly Bill 32 – California Global Warming Solutions Act

In 2006, the California legislature passed Assembly Bill (AB) 32 (Health and Safety Code § 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which outlines measures to meet the 2020 GHG reduction goals. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by the end of 2020.

The Scoping Plan is required by AB 32 to be updated at least every five years. The latest update, the 2017 Scoping Plan Update, addresses the 2030 target established by Senate Bill (SB) 32 as discussed below and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include § 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by Executive Order (EO) B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

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 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.

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, 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."

Regional

Southern California Association of Governments - 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy

The 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.

In September 2020, SCAG adopted the 2020-2045 RTP/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 NAAQS as set forth by the federal CAA (see Section 3.3, Air Quality, of this EIR). The following SCAG goal is applicable to the project:

- Reduce greenhouse gas emissions and improve air quality

As a solar generation facility, the proposed project would improve air quality by reducing the use of fossil fuels in energy production.

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.

3.8.3 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.

California Air Pollution Control Officers Association Significance Threshold

The ICAPCD has not adopted a GHG significance threshold. As previously described, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). Thus, in the absence of any GHG emissions significance thresholds, project GHG emissions are compared against the GHG threshold recommended by the California Air Pollution Control Officers Association (CAPCOA), which has provided guidance for determining the significance of GHG emissions generated from land use development projects. CAPCOA considers projects that generate more than 900 metric tons of CO_2e per year to be significant. This 900 metric tons per year threshold was developed to ensure at least 90 percent of new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to the statewide GHG emissions reduction goals that had been established for the year

2030 under SB 32. Thus, both cumulatively and individually, projects that generate less than 900 metric tons CO_2e per year have a negligible contribution to overall 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 3.4 Air Quality. Emissions were estimated using existing conditions, project construction and operations information, as well as a combination of emission factors from various sources. Where GHG emission quantification was required, emissions were modeled using the CalEEMod, version 2020.4.0. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects.

Impact Analysis

Impact 3.8-1 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.

Construction. During construction, GHG emissions would be generated from the operation of off-road equipment, haul-truck trips, and on-road worker vehicle trips. Table 3.8-2 shows the project's construction-related GHG emissions. Consistent with SCAQMD's recommendations, project construction GHG emissions from all phases of construction activities were amortized over the expected life of the project, which is considered to be 30 years for a solar energy generation facility.

Table 3.8-2. Project Construction-Related Greenhouse Gas Emissions

Emissions Source	CO_2e (metric tons/year)
Total Project Construction (amortized over the 30-year life of the Project)	18.88
CAPCOA Significance Threshold	900
Exceed CAPCOA's Significance Threshold?	**No**

Source: Appendix C of this EIR

As shown in Table 3.8-2, the project would result in the generation of approximately 19 $MTCO_2e$ annualized over the lifetime of the project. Therefore, the construction emissions are less than the CAPCOA's screening threshold of 900 $MTCO_2e$ per year.

Operation. Once the project is constructed and operational, the proposed project would have no major stationary emission sources and would require minimal vehicular trips. The proposed project is anticipated to generate GHG emissions from area sources, energy usage and production, mobile sources, waste disposal, and water usage.

As shown in Table 3.8-3, the proposed project would reduce GHG emissions created in Imperial County by 4,319 $MTCO_2e$ by providing a zero carbon source of electricity generation. The proposed project would not exceed CAPCOA's annual GHG emissions threshold of 900 $MTCO_2e$ per year. Therefore, a less than significant impact would occur.

Table 3.8-3. Project Operation-Related Greenhouse Gas Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Category	CO_2	CH_4	N_2O	CO_2e
Area Sources[1]	0.01	0.00	0.00	0.01
Energy Usage and Production[2]	-4,299.50	-0.75	-0.09	-4,345.14
Mobile Sources[3]	5.35	0.00	0.00	5.44
Backup Generator[4]	0.61	0.00	0.00	0.62
Solid Waste[5]	0.00	0.00	0.00	0.00
Water and Wastewater[6]	0.38	0.01	0.00	0.66
Construction[7]	18.63	0.00	0.00	18.88
Total GHG Emissions	**-4,274.52**	**-0.73**	**-0.09**	**-4,319.54**
CAPCOA Significance Threshold				**900**
Exceed CAPCOA Significance Threshold?				**No**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity used and generated onsite.
[3] Mobile sources consist of GHG emissions from vehicles.
[4] Backup Generator based on a 20 kW (62 Horsepower) diesel generator that has a cycling schedule of 30 minutes per week.
[5] Solid Waste. Since no employees would be onsite during typical operations, no solid waste is anticipated to be generated from the project.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: Appendix C of this EIR

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.8-2 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 3.8-1, the proposed project would generate a relatively small amount of GHG emissions. The project-generated GHG emissions would not exceed the CAPCOA significance threshold, which was prepared with the purpose of complying with statewide GHG-reduction efforts. While the project would emit some GHG emissions during construction and a very small amount during operations, the contribution of renewable resource energy production to meet the goals of the Renewable Portfolio Standard (Scoping Plan Measure E-3) would result in a net cumulative reduction of GHG emissions, a key environmental benefit. Scoping Plan Measure E-3, Renewable Portfolio Standard, of the Climate Change Scoping Plan requires that all investor-owned utility companies generate 60 percent of their energy demand from renewable sources by the year 2030. Therefore, the short-term minor generation of GHG emissions during construction which is necessary to create this new, low-GHG emitting power-generating facility, as well as the negligible amount generated during ongoing maintenance operations, would be more than offset by GHG emission reductions associated with solar-generated energy during operation.

Increasing sources of solar energy is one of the measures identified under the Scoping Plan to reduce statewide GHG emissions. The proposed project would reduce GHG emissions in a manner consistent with SB 32 and other California GHG-reducing legislation by creating a new source of solar power to replace the current use of fossil-fuel power and reduce GHG emissions power generation and use. 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.

3.8.4 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 would result in GHG emissions below allowable thresholds.

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 SB 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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3.9 Hazards and Hazardous Materials

Information contained in this section is summarized from review of information from Envirostor, GeoTracker, and relevant County plans to present the existing conditions, in addition to identifying potential environmental impacts. This section addresses potential hazards and hazardous materials for construction and operational impacts.

3.9.1 Existing Conditions

The project site is located in an agriculturally zoned area of Imperial County. The project site consists of agricultural fields that are currently under cultivation. The potential for an accident is increased in regions near major arterial roadways or railways that transport hazardous materials in regions with agricultural or industrial facilities that use, store, handle, or dispose of hazardous materials.

Records Review

Envirostor

The Envirostor Database from the California DTSC records was reviewed for known contamination or sites for which there may be reason to investigate further. A desktop review was completed on September 14, 2021 for the project site. Two Leaking Underground Storage Tanks (LUST) were identified within 1 mile of the project site; however, both cases have been complete and are closed. No reported cases were found on the project sites and no active sites have been identified within 1-mile of the project site.

GeoTracker

Geotracker GIS data from the SWRCB was used to review regulatory data about underground fuel tanks, fuel pipelines, and public drinking water supplies. Site information from the Spills, Leaks, Investigations, and Cleanups Program is also included in GeoTracker. A desktop review was completed on September 14, 2021 for the project site. No reported cases were found on the project site and no risk sites were located within 1 mile of the project sites.

Airports

The project site is located within 2 miles of a public airport or a public use airport. The nearest airport to the proposed project is the Brawley Municipal Airport located approximately 1.5 miles south of the project site.

Fire Hazard

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 (County of Imperial 1997a).

Battery Energy Storage System

The on-site battery energy storage system would utilize lithium-ion batteries. The batteries could contain a variety of valuable metals, and recycling of these batteries is expected to become increasingly commonplace with the increased use of batteries in consumer goods and electric

vehicles. Some batteries may have the capacity at the end of the operating life of the project to be reused.

3.9.2 Regulatory Setting

This section identifies and summarizes state and local laws, policies, and regulations that are applicable to the project.

Federal

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. Over 5 years, $1.6 billion was collected and the tax went to a trust fund for cleaning up abandoned or uncontrolled hazardous waste sites. The Comprehensive Environmental Response, Compensation, and Liability Act established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified.

Emergency Planning Community Right-to-Know Act of 1986 (42 United States Code 11001 et seq.)

The Emergency Planning Community Right-to-Know Act was included under the Superfund Amendments and Reauthorization Act (SARA) law and is commonly referred to as SARA Title III. Emergency Planning Community Right-to-Know was passed in response to concerns regarding the environmental and safety hazards posed by the storage and handling of toxic chemicals. These concerns were triggered by the disaster in Bhopal, India, in which more than 2,000 people suffered death or serious injury from the accidental release of methyl isocyanate. To reduce the likelihood of such a disaster in the U.S., Congress imposed requirements on both states and regulated facilities.

Emergency Planning Community Right-to-Know establishes requirements for federal, state, and local governments, Indian Tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. SARA Title III requires states and local emergency planning groups to develop community emergency response plans for protection from a list of Extremely Hazardous Substances (40 CFR 355). The Emergency Planning Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. In California, SARA Title III is implemented through the California Accidental Release Prevention.

Federal Insecticide, Fungicide, and Rodenticide Act

The objective of Federal Insecticide, Fungicide, and Rodenticide Act is to provide federal control of pesticide distribution, sale, and use. All pesticides used in the U.S. must be registered (licensed) by the EPA. Registration assures that pesticides would be properly labeled and that, if used in accordance with specifications, they would not cause unreasonable harm to the environment. Use of each registered pesticide must be consistent with use directions contained on the label or labeling.

Federal Water Pollution Control Act (Clean Water Act)

The objective of the Federal Water Pollution Control Act, commonly referred to as the CWA, is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands. The oil SPCC Program of the CWA specifically seeks to prevent oil discharges from reaching waters of the U.S. or adjoining shorelines. Further, farms are subject to the SPCC rule if they:

- Store, transfer, use, or consume oil or oil products
- Could reasonably be expected to discharge oil to waters of the U.S. or adjoining shorelines. Farms that meet these criteria are subject to the SPCC rule if they meet at least one of the following capacity thresholds:
    - Aboveground oil storage capacity greater than 1,320 gallons
    - Completely buried oil storage capacity greater than 42,000 gallons

However, the following are exemptions to the SPCC rule:

- Completely buried storage tanks subject to all the technical requirements of the underground storage tank regulations
- Containers with a storage capacity less than 55 gallons of oil
- Wastewater treatment facilities
- Permanently closed containers
- Motive power containers (e.g., automotive or truck fuel tanks)

Hazardous Materials Transport Act – Code of Federal Regulations

The Hazardous Materials Transportation Act was published in 1975. Its primary objective is to provide adequate protection against the risks to life and property inherent in the transportation of hazardous material in commerce by improving the regulatory and enforcement authority of the Secretary of Transportation. A hazardous material, as defined by the Secretary of Transportation is, any “particular quantity or form” of a material that “may pose an unreasonable risk to health and safety or property.”

Occupational Safety and Health Administration

Occupational Safety and Health Administration’s (OSHA) mission is to ensure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. OSHA standards are listed in 29 CFR Part 1910.

The OHSA Process Safety Management of Highly Hazardous Chemicals (29 CFR Part 110.119) is intended to prevent or minimize the consequences of a catastrophic release of toxic, reactive, flammable, or explosive highly hazardous chemicals by regulating their use, storage, manufacturing, and handling. The standard intends to accomplish its goal by requiring a comprehensive management program integrating technologies, procedures, and management practices.

Resource Conservation and Recovery Act

The goal of the Resource Conservation and Recovery Act, a federal statute passed in 1976, is the protection of human health and the environment, the reduction of waste, the conservation of energy and natural resources, and the elimination of the generation of hazardous waste as expeditiously as possible. The Hazardous and Solid Waste Amendments of 1984 significantly expanded the scope of RCRA by adding new corrective action requirements, land disposal restrictions, and technical requirements. The corresponding regulations in 40 CFR 260-299 provide the general framework for managing hazardous waste, including requirements for entities that generate, store, transport, treat, and dispose of hazardous waste.

State

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources

The Division of Oil, Gas, and Geothermal Resources was formed in 1915 to address the needs of the state, local governments, and industry by regulating statewide oil and gas activities with uniform laws and regulations. The Division supervises the drilling, operation, maintenance, and plugging and abandonment of onshore and offshore oil, gas, and geothermal wells, preventing damage to: (1) life, health, property, and natural resources; (2) underground and surface waters suitable for irrigation or domestic use; and (3) oil, gas, and geothermal reservoirs. The Division's programs include: well permitting and testing; safety inspections; oversight of production and injection projects; environmental lease inspections; idle-well testing; inspecting oilfield tanks, pipelines, and sumps; hazardous and orphan well plugging and abandonment contracts; and subsidence monitoring.

California Department of Toxic Substances Control

DTSC regulates hazardous waste, cleans-up existing contamination, and looks for ways to reduce the hazardous waste produced in California. Approximately 1,000 scientists, engineers, and specialized support staff are responsible for ensuring that companies and individuals handle, transport, store, treat, dispose of, and clean-up hazardous wastes appropriately. Through these measures, DTSC contributes to greater safety for all Californians, and less hazardous waste reaches the environment.

On January 1, 2003, the Registered Environmental Assessor program joined DTSC. The program certifies environmental experts and specialists as being qualified to perform a number of environmental assessment activities. Those activities include private site management, Phase I ESAs, risk assessment, and more.

California Division of Occupational Safety and Health

The California Division of Occupational Safety and Health protects workers and the public from safety hazards through its programs and provides consultative assistance to employers. California Division of Occupational Safety and Health issues permits, provides employee training workshops, conducts inspections of facilities, investigates health and safety complaints, and develops and enforces employer health and safety policies and procedures.

California Environmental Protection Agency

California Environmental Protection Agency and the SWRCB establish rules governing the use of hazardous materials and the management of hazardous waste. Applicable state and local laws include the following:

- Public Safety/Fire Regulations/Building Codes
- Hazardous Waste Control Law
- Hazardous Substances Information and Training Act
- Air Toxics Hot Spots and Emissions Inventory Law
- Underground Storage of Hazardous Substances Act
- Porter-Cologne Water Quality Control Act

Within Cal-EPA, DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency, for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law.

California Emergency Response Plan

California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is managed by the State Office of Emergency Services (OES), which coordinates the responses of other agencies including Cal-EPA, the California Highway Patrol, CDFW, RWQCB, Imperial County Sheriff's Department, ICFD, and the City of Imperial Police Department.

Local

Imperial County General Plan

The Seismic and Public Safety Element identifies goals and policies that will minimize the risks associated with natural and human-made hazards, and specify the land use planning procedures that should be implemented to avoid hazardous situations. The purpose of the Seismic and Public Safety Element is to reduce the loss of life, injury, and property damage that might result from disaster or accident. In addition, the Element specifies land use planning procedures that should be implemented to avoid hazardous situations. The policies listed in the Seismic and Public Safety Element are not applicable to the proposed project, as they address human occupancy development. The proposed project is a solar project and does not propose residential uses.

Imperial County Public Health Department

DTSC was appointed the Certified Unified Program Agency (CUPA) for Imperial County in January 2005. The Unified Program is the consolidation of 6 state environmental programs into one program under the authority of a CUPA. The CUPA inspects businesses or facilities that handle or store hazardous materials, generate hazardous waste, own or operate ASTs or USTs, and comply with the California Accidental Release Prevention Program. The CUPA Program is instrumental in accomplishing this goal through education, community and industry outreach, inspections and enforcement.

Office of Emergency Services

As part of the ICFD, the County OES is mandated by the California Emergency Services Act (Chapter 7, Division 1, Title 2 of Government Code) to serve as the liaison between the State and all the local

government in the County. The OES provides centralized emergency management during major disasters, and coordinates emergency operations between various local jurisdictions within the County. The OES has developed several plans, consistent with federal and state policy guidance, to provide the County and participating local jurisdictions and agencies a framework for conducting emergency planning, response, and recovery operations, and handling of hazardous substances.

3.9.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to land use and planning, 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 hazards and hazardous materials are considered significant if any of the following occur:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires

Methodology

This analysis evaluates the potential for the project, as described in Chapter 2, Project Description to result in significant impacts related to hazards and hazardous materials on or within the 1-mile buffer zone of the project site. This analysis considers whether these conditions would result in an exceedance of one or more of the applied significance criteria as identified above.

Information from Envirostor and GeoTracker were reviewed to present the existing conditions, in addition to identifying potential environmental impacts, based on the significance criteria presented above. Impacts associated with hazards and hazardous materials that could result from project construction and operational activities were evaluated qualitatively based on site conditions; expected

construction practices; materials, locations, duration of project construction, and related activities. The conceptual site plan for the project was also used to evaluate potential impacts.

Impact Analysis

Impact 3.9-1 Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Although considered minimal, it is anticipated that the project will generate the following materials during construction, operation, and long-term maintenance: insulating oil (used for electrical equipment), lubricating oil (used for maintenance vehicles), various solvents/detergents (equipment cleaning), and gasoline (used for maintenance vehicles). These materials have the potential to be released into the environment as a result of natural hazard (i.e., earthquake) related events, or because of human error. However, all materials contained on site will be stored in appropriate containers (not to exceed a 55-gallon drum) protected from environmental conditions, including rain, wind, and direct heat and physical hazards such as vehicle traffic and sources of heat and impact. In addition, if the on-site storage of hazardous materials necessitate, at any time during construction and/or operations and long-term maintenance, quantities in excess of 55-gallons, a hazardous material management program (HMMP) would be required. The HMMP developed for the project will include, at a minimum, procedures for:

- Hazardous materials handling, use and storage
- Emergency response
- Spill control and prevention
- Employee training
- Record keeping and reporting

Additionally, hazardous material storage and management will be conducted in accordance with requirements set forth by the ICFD, Imperial County OES, DTSC, and CUPA for storage and handling of hazardous materials. Further, construction activities would occur according to OSHA regulatory requirements; therefore, it is not anticipated that the construction activities for the proposed project would release hazardous emissions or result in the handling of hazardous or acutely hazardous materials, substances, or waste. This could include the release of hazardous emissions, materials, substances, or wastes during operational activities. With the implementation of an HMMP and adherence to requirements set forth by the ICFD, Imperial County OES, DTSC, OSHA regulatory requirements and CUPA would reduce the impact to a level of less than significant.

Battery Energy Storage System

In conjunction with the construction of the solar facility, a battery energy storage system will be constructed to store the energy generated by the solar panels. Transportation of hazardous materials relating to the battery system includes electrolyte and graphite and would occur during construction, operation (if replacement of batteries is needed) and decommissioning (removal of the batteries). All of these various materials would be transported and handled in compliance with DTSC regulations. Therefore, likelihood of an accidental release during transport or residual contamination following accidental release is not anticipated.

Lithium-ion batteries used in the storage system contain cobalt oxide, manganese dioxide, nickel oxide, carbon, electrolyte, and polyvinylidene fluoride. Of these chemicals, only electrolyte should be considered hazardous, inflammable and could react dangerously when mixed with water. The U.S. Department of Transportation (DOT) regulates transport of lithium-ion batteries under the DOT's Hazardous Materials Regulations (HMR; 49 C.F.R., Parts 171-180). The HMR apply to any material DOT determines is capable of posing an unreasonable risk to health, safety, and property when transported in commerce. Lithium-ion batteries must conform to all applicable HMR requirements when offered for transportation or transported by air, highway, rail, or water (DOT 2021). Additionally, carbon (as graphite) is flammable and could pose a fire hazard. As further detailed below, fire protection is achieved through project design features, such as monitoring, diagnostics and a fire suppression system. The project would be required to comply with state laws and county ordinance restrictions, which regulate and control hazardous materials handled on site.

Construction wastes would be disposed of in accordance with local, state, and federal regulations, and recycling will be used to the greatest extent possible. In this context, with adherence to requirements set forth by the ICFD, Imperial County OES, DTSC, OSHA regulatory requirements and CUPA, impacts would be less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.9-2 Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Hazardous Materials

The project site is currently being used for agricultural production. Typical agricultural practices in the Imperial Valley consist of aerial and ground application of pesticides and the application of chemical fertilizers to both ground and irrigation water. However, the Federal Insecticide, Fungicide, and Rodenticide Act provides federal control of pesticide distribution, sale, and use. Pesticides used in the United States must be registered by the EPA to assure that pesticides are properly labeled and that they will not cause unreasonable harm to the environment. The construction phase, operations and long-term maintenance of the facility would not result in additional application of pesticides or fertilizers.

As stated above, construction of the proposed project will involve the use of limited use of hazardous materials, such as fuels and greases to fuel and service construction equipment, and during operation regular and routine maintenance of the proposed 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. Therefore, a less than significant impact has been identified for this issue area.

Review of information from Envirostor and GeoTracker, the project site is not listed as a hazardous materials site and there are no active sites that require cleanup, such as LUST Sites, Department of

Defense Sites, and Cleanup Program Sites within 1 mile of the project site. The two LUST cases within 1 mile of the project site are completed and closed.

Battery Energy Storage System

Protection would be provided as part of the project design by housing the battery units in enclosed structures to provide containment should a fire break out or for potential spills. Any potential fire risk that the traditional lithium-ion cells have will most likely be caused by over-charging or through short circuit due to age. This risk will be mitigated through monitoring and a fire suppression system that includes water and or a suppression agent (eg FM-200, Novatech) with smoke detectors, control panel, alarm, piping and nozzles. The fire protection system will be designed by a certified fire protection engineer and installed by a fire protection system contractor licensed in California and in accordance with all relevant building and fire codes in effect in the County at the time of building permit submission. Fire protection systems for battery systems would be designed in accordance with California Fire Code and would take into consideration the recommendations of the National Fire Protection Association (NFPA) 855.

The fire protection plan is anticipated to include a combination of prevention, suppression, and isolation methods and materials. The general approach to fire mitigation at the project site would be prevention of an incident, followed by attempts to isolate and control the incident to the immediately affected equipment, then to suppress any fire with a clean agent so as to reduce damage to uninvolved equipment. Fire suppression agents such as Novec 1230 or FM 2000, or water may be used as a suppressant. In addition, fire prevention methods would be implemented to reduce potential fire risk, including voltage, current, and temperature alarms. Energy storage equipment would comply with Underwriters Laboratory (UL)-95401 and test methods associated with UL-9540A. For lithium-ion batteries storage, a system would be used that would contain the fire event and encourage suppression through cooling, isolation, and containment. Suppressing a lithium-ion (secondary) battery is best accomplished by cooling the burning material. A gaseous fire suppressant agent (e.g., 3M™ Novec™ 1230 Fire Protection Fluid or similar) and an automatic fire extinguishing system with sound and light alarms would be used for lithium-ion batteries.

To mitigate potential hazards, redundant separate methods of failure detection would be implemented. These would include alarms from the Battery Management System (BMS), including voltage, current, and temperature alarms. Detection methods for off gas detection would be implemented, as applicable. These are in addition to other potential protective measures such as ventilation, overcurrent protection, battery controls maintaining batteries within designated parameters, temperature and humidity controls, smoke detection, and maintenance in accordance with manufacturer guidelines. Remote alarms would be installed for operations personnel as well as emergency response teams in addition to exterior hazard lighting. In addition, an Incidence Response Plan would be implemented. In this context, impacts would be considered less than significant for this impact area.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.9-3 Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The project site is not located within 0.25 mile of an existing or proposed school. Therefore, the proposed project would not pose a risk to nearby schools and no impact would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.9-4 Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?

Based on a review of the Cortese List conducted in September 2021, the project site is not listed as a hazardous materials site. Therefore, implementation of the proposed project would result in no impact related to the project site being located on a listed hazardous materials site pursuant to Government Code Section 65962.5.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.9-5 For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area?

The nearest public airport is the Brawley Municipal Airport located approximately 1.5 miles south of the project site. However, the project site is outside of the airport compatibility zones of the Brawley Municipal Airport (County of Imperial 1996). Additionally, as discussed in Section 3.2, Aesthetics, the project would not expose approach slopes associated with the Brawley Municipal Airport to glare hazards. Therefore, implementation of the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area and no impact would occur. No significant impact is identified for this issue area.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.9-6 Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The Imperial County Operational Area Emergency Operations Plan (Imperial County OES 2016) does not identify specific emergency roadway routes as part of their emergency operations plan (EOP). The Circulation & Scenic Highways Element of the General Plan (County of Imperial 2008), identifies SR-

111, located west of the project site, as the "backbone" route of Imperial County since it connects the three largest cities and acts as a major goods movement route.

The applicant for the proposed project will be required, through the Conditions of Approval, to prepare a street improvement plan for the proposed project that will include emergency access points and safe vehicular travel. Additionally, 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 response plans or emergency evacuation plans.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.9-7 Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

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.

Proposed project facilities would be designed, constructed, and operated in accordance with applicable fire protection and other environmental, health, and safety requirements (e.g., CPUC safety standards). Primary access to the project site would be located off N Best Avenue. A secondary emergency access road would be located in the northwest portion of the project site. Access roads would also be constructed with an all-weather surface, to meet the County Fire Department's standards. Points of ingress/egress would be accessed via locked gates that can be opened by any emergency responders. Additionally, water for emergency fire suppression would likely be provided by water trucks during construction and the existing ground storage tank on-site which is filled by the Best Canal during operation.

Because the proposed project is not located in proximity to an area susceptible to wildland fires, implementation of the proposed project would result in a less than significant impact related to the possible risk to people or structures caused by wildland fires.

Mitigation Measure(s)

No mitigation measures are required.

3.9.4 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. During decommissioning and restoration of the project site, the applicant or its successor in interest would be responsible for the removal, recycling, and/or disposal of all solar arrays, inverters, battery storage system, transformers and other structures on each of the project site. The project applicant anticipates using the best available recycling measures at the time of decommissioning. Any potentially hazardous materials located on the site would be disposed of, and/or remediated prior to construction of the solar facilities. At the end of a lithium-ion module's useful life (typically estimated to be 10 to 20+ years) and final project decommissioning, the batteries would

be decommissioned and recycled per manufacturer guidelines. Certain manufacturers allow for the batteries to be returned to the manufacturing facility or a third-party recycling facility where the batteries are disassembled, and certain materials are recovered from the battery for reuse.

The operation of the solar facility would not generate hazardous wastes and therefore, implementation of applicable regulations and mitigation measures identified for construction and operations would ensure restoration of the project site to pre-project conditions during the decommissioning process in a manner that would be less than significant. Furthermore, decommissioning/restoration activities would not result in a potential impact associated with ALUCP consistency (structures would be removed and the site would remain in an undeveloped condition), wildfires (fire protection measures), or impediment to an emergency plan (the undeveloped condition as restored, would not conflict with emergency plans).

Residual

Adherence to federal, state and local regulations will ensure that impacts related to the transportation of hazardous materials and potential fires would be reduced to levels less than significant. Based on these circumstances, the proposed project would not result in residual significant and unmitigable impacts related to hazards and hazardous materials.

3.10 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.

3.10.1 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 (California RWQCB 2019). The western portion of the project site is located within the New River watershed (Hydrologic Unit Code [HUC-10] 1810020411); the eastern portion of the project site is located within the Alamo River watershed (HUC-10 1810020408) (Appendix D 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 3.15 inches for the project area (City of Brawley 2020).

Localized Drainage Conditions

The project site and the surrounding terrain is generally flat. The New River flows through the middle portion of the project site. In addition, several drains, and ditches owned by Imperial Irrigation District (IID) flow along the borders of the project site (Appendix D of this EIR).

Flooding

According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) (Map Number 06025C1025C) (FEMA 2008), the proposed project site is 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. However, the project site is bounded to the west by the New River, which is within the 100-year floodplain, and subject to a 1 percent chance of annual flood risk (FEMA 2008).

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.

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. Surface waters mostly drain towards the Salton Sea. The New and Alamo Rivers convey agricultural irrigation drainage, surface runoff, and some treated municipal waste from the Imperial Valley. The flow in the New River also contains agricultural drainage, treated and untreated sewage, and industrial waste discharges from Mexicali, Mexico (California RWQCB 2019).

Based on the 2018 305(b)/303(d) Integrated Report prepared by the Colorado River Basin RWQCB, the water features within the Brawley Hydrologic Area include the Imperial Valley Drains, New River, and the Salton Sea (California RWQCB 2021). Specific impairments listed for each of these water bodies (or Category 5) are identified below:

- Imperial Valley Drains: Impaired for chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, imidacloprid, Polychlorinated biphenyls (PCBs), chlorpyrifos, sedimentation/siltation, toxicity, toxaphene, and selenium;
- New River: Impaired for Hexachlorobenzene, mercury, nutrients, selenium, toxicity, indicator bacteria, organic enrichment/low dissolved oxygen, sediment, trash, toxaphene, chlordane, chlorpyrifos, DDT, diazinon, cyhalothrin, lambda, malathion, dieldrin, PCBs, bifenthrin, chloride, cypermethrin, naphthalene, nitrogen ammonia, disulfoton, imidacloprid, and ichlorodiphenyldichloroethan (DDD);
- Salton Sea: Impaired for arsenic, chlorpyrifos, DDT, enterococcus, low dissolved oxygen, nutrients, salinity, toxicity, chloride, and ammonia (California RWQCB 2021).

Groundwater Hydrology

The project site is located in the Imperial Valley Groundwater Basin (Basin 7-030). The basin covers 957,774 acres. Adjacent basins include East Salton Sea to the north, Amos Valley to the northeast, Ogilby Valley to the southeast, Coyote Wells Valley to the southwest, and Ocotillo-Clark Valley to the northwest (Groundwater Exchange 2021; California Department of Water Resources 2021).

Groundwater quality in the Imperial Valley Basin is generally reported as poor and not suitable for domestic or municipal purposes (United States Geological Survey 2014).

3.10.2 Regulatory Setting

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 3.5, 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 3.10-1 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 3.10-1. 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 2021

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 3.10-2 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 3.10-2. 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 3.10-2. 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.
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.

Table 3.10-2. Project Consistency with Applicable General Plan Policies

General Plan Policies	Consistency with General Plan	Analysis

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).

3.10.3 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

Impact 3.10-1 ***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.

The project 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 3.10-3 lists the various site design BMPs.

Table 3.10-3. 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 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 3.10-4 identifies source control BMPs that would be applicable to the proposed project.

Table 3.10-4. 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.
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.

Table 3.10-4. Source Control Best Management Practices

	Design Concept	Description
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.

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.

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 3.10-2 ***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 would not require the construction of a groundwater well and/or the direct use of groundwater for construction or operation. As described in Chapter 2 Project Description, 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. Water would be obtained from a ground storage tank existing onsite which fills from the Best Canal along the eastern property boundary. Water may also be obtained from a nearby canal or lateral and delivered to the construction location by a water truck capable of carrying approximately 4,000 gallons per load (Appendix H of this EIR).

According to the Water Supply Assessment prepared for the project (Appendix H of this EIR), the anticipated water demand for construction, operation, and decommissioning of the project is estimated to be 151.8 acre-feet (AF), for an annualized demand of 5.06 acre-feet per year (AFY) for the 30-year project life. Water for the project site will be supplied through an Interim Water Supply Policy (IWSP) Water Supply Agreement with IID to process the untreated Colorado River water for the proposed project. The IWSP sets aside 25,000 AFY of IID's Colorado River water supply to serve new non-agricultural projects. As of October 2021, a balance of 23,800 AFY remain available under the IWSP for new non-agricultural projects ensuring reasonably sufficient supplies for such projects. As discussed in Section 3.15, Utilities and Service Systems, the project is expected to consume 151.8 AF for the 30-year lifespan of the project which would equate to 5.06 AFY amortized representing 0.02% of the annual unallocated supply set aside for new non-agricultural projects (Appendix H of this EIR).

Further, groundwater recharge in the area will not be significantly affected as 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. 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 3.10-3 ***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?

Project implementation would not substantially alter the existing drainage pattern of the site or area. 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 and project-specific SWPPP, as outlined in Mitigation Measure HYD-1.

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. As such, daily operations and routine maintenance (such as occasional PV panel washing) are not anticipated to alter the existing drainage pattern such that erosion increases when compared to existing conditions. The project site would remain largely impervious over the operational life of the project. Additionally, the project would implement site design BMPs, as outlined in Table 3.10-3, which would reduce soil disturbance during operation. 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 additional mitigation measures beyond Mitigation Measures HYD-1 are required.

Significance after Mitigation

With the implementation of Mitigation Measure HYD-1, potential impacts associated with the alteration of drainage patterns resulting in substantial erosion or siltation on- or off-site would be reduced to a level less than significant through compliance with County standards, implementation of a Dust Control Plan (Rule 801), and compliance with the NPDES General Construction Permit and project-specific SWPPP.

Impact 3.10-4 ***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?

Project implementation would not substantially alter the existing drainage pattern of the site or area. The majority of the project site would continue to sheet flow through the pervious native soils. 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. Additionally, implementation of Mitigation Measure HYD-2 requires that the project Drainage Plan 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. As such, 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.

Additionally, 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. As such, daily operations and routine maintenance (such as occasional PV panel washing) are not anticipated to alter the existing drainage pattern such that flooding (on- or off-site) increases when compared to existing conditions. Lastly, the project site would remain largely impervious over the operational life of the project. 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)

Implement Mitigation Measure HYD-2.

Significance after Mitigation

With the implementation of Mitigation Measure HYD-2, impacts on existing drainage patterns as a result of potentially substantial increases to runoff would be reduced to a level less than significant. Implementation of Mitigation Measure HYD-2 would require the project's Drainage Plan to 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.

Impact 3.10-5 ***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?

Project implementation would not substantially alter the existing drainage pattern of the site or area. During construction, erosion and associated pollutants 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 and project-specific SWPPP, as outlined in Mitigation Measure HYD-1 (see Impact 3.10-1 for additional details).

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. The proposed project is not anticipated to generate a significant increase in the amount of runoff water when compared to existing conditions. As such, daily operations and routine maintenance (such as occasional PV panel washing) are not anticipated to alter the existing drainage pattern such that runoff increases would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. The project site would remain largely impervious over the operational life of the project. 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)

Implement Mitigation Measure HYD-1.

Significance after Mitigation

With the implementation of Mitigation Measure HYD-1, impacts on the existing drainage pattern by the project that could result in substantial or polluted runoff would be reduced to a level less than significant through compliance with County standards, implementation of a Dust Control Plan (Rule 801), and compliance with the NPDES General Construction Permit and project-specific SWPPP.

Impact 3.10-6 ***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?

Project implementation would not substantially alter the existing drainage pattern of the site or area. 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. Additionally, according to the FEMA's FIRM (Map Number Map Number 06025C1025C) (FEMA 2008), the proposed solar energy facility, gen-tie line, and access roads located on 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. 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 3.10-7 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 11.2 miles northwest of the project site. Because of the distance, the Salton Sea does not pose a 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. No impact would occur.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.10-8 Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As described under Impact 3.10-1 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. Additionally, the project would not require the direct use of groundwater. Therefore, the proposed project would not pose a significant threat to local surface water features or shallow groundwater resources, and, as such would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. 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.

3.10.4 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. 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.

3.11 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 govern land use within the project area and evaluates the project's potential to conflict 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.

3.11.1 Existing Conditions

The project site is located on approximately 227 acres of privately-owned land in the unincorporated area of Imperial County, CA (Figure 3-1). The site is approximately one mile north from the City of Brawley's jurisdictional limit. The project site is south of Baughman Road, west of N Best Avenue, and north of Andre Road. The Union Pacific Railway transects the project site. Table 3.11-1 identifies the individual assessor's parcel numbers (APN) associated with the project site with their respective acreage, General Plan land use designation, and zoning.

Table 3.11-1. Project Assessor Parcel Numbers, Acreages, and Zoning

APN	Acreage	General Plan Land Use	Zoning
037-140-020	61.73	Agriculture	A-2-G
037-140-021	68.71	Agriculture	A-2-G
037-140-022	38.15	Agriculture	A-2-G
037-140-023	24.71	Agriculture	A-2-G
037-140-006	33.68	Agriculture	A-2-G
Total Gross Acres	**227**	**--**	**--**

APN = assessor parcel number; A-2-G = General Agricultural with Geothermal Overlay

As shown on Figure 3.11-1, the project site's land use is designated Agriculture under the County's General Plan. As depicted on Figure 3.11-2, the solar energy facility site is located on a total of five privately-owned legal parcels zoned A-2-G (General Agriculture with Geothermal Overlay). The proposed 1.8-mile gen-tie line would originate from the southern edge of the project site and then head west along Andre Road to interconnect to the IID existing North Brawley Geothermal Power Plant substation, located at Hovley Road and Andre Road.

Figure 3.11-1. General Plan Land Use Designations

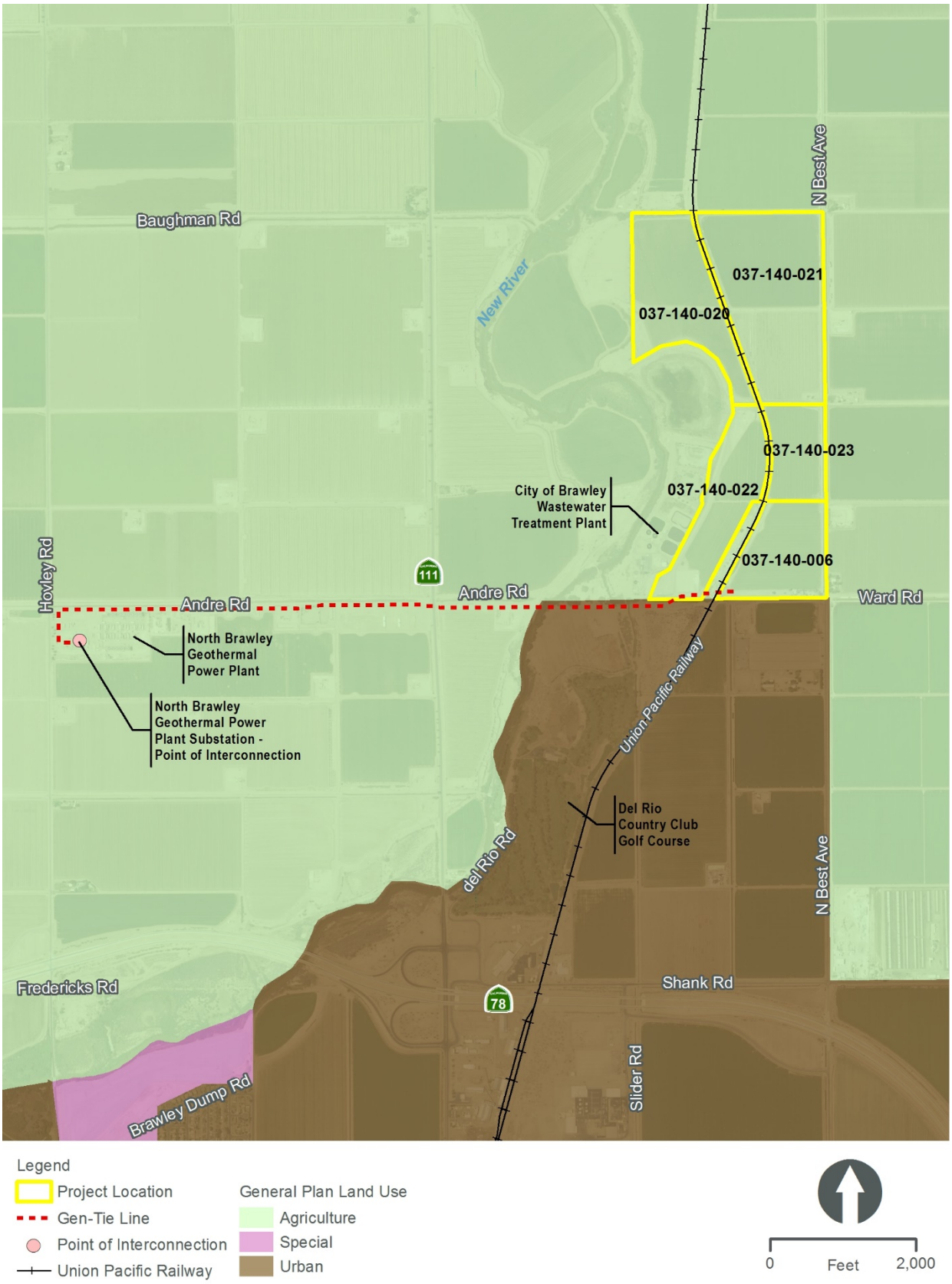
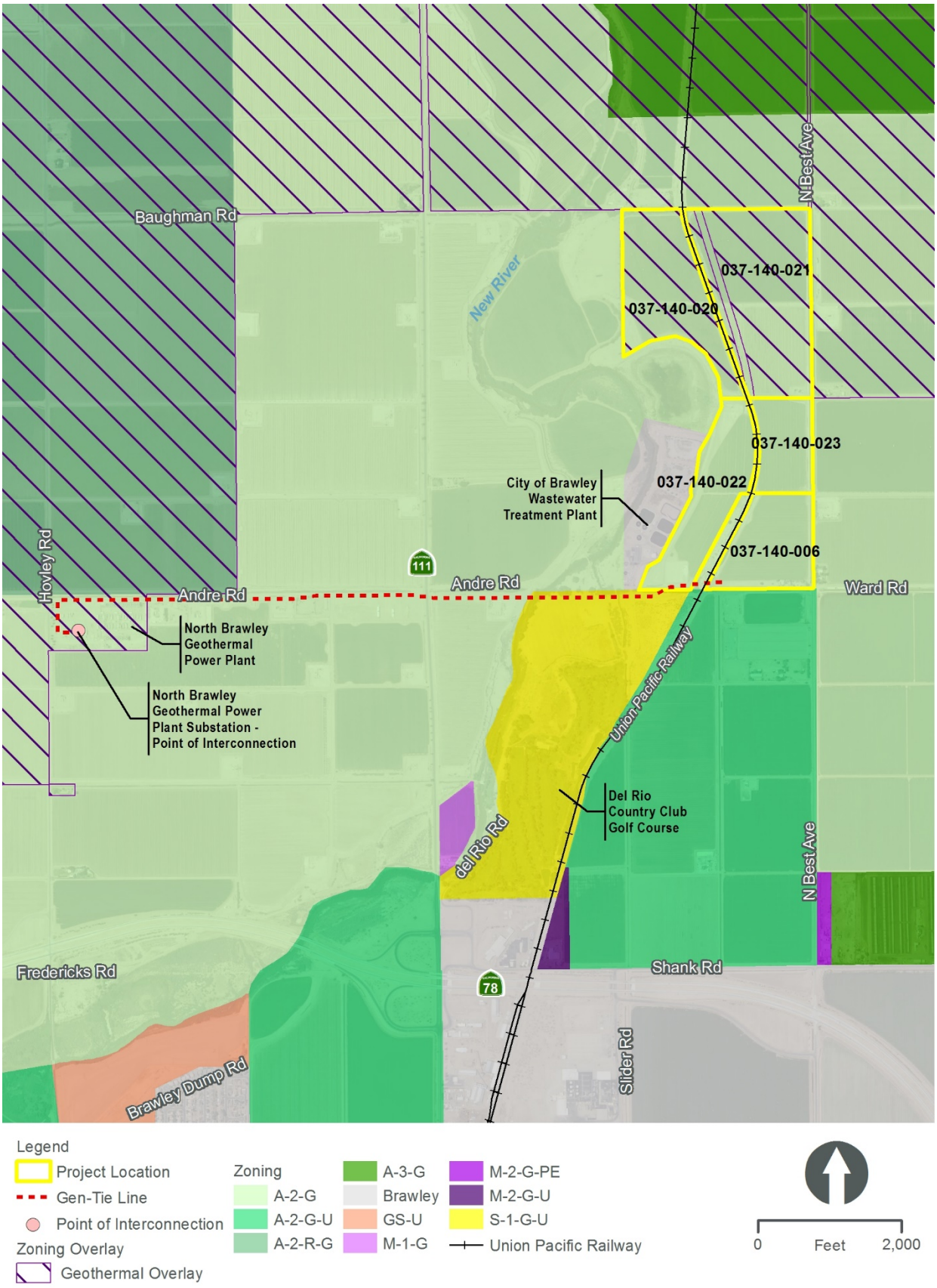


Figure 3.11-2. Zoning Designations



As discussed in Chapter 2, the County adopted the Renewable Energy 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 renewable energy facilities while minimizing the impact on other established uses. As shown on Figure 3.11-2, the northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site is located outside of the RE Overlay Zone.

The project applicant is seeking a zone change to include/classify all five project parcels into the Renewable Energy/Geothermal (REG) Overlay Zone (A-2-REG). Further, 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 with an integrated battery storage system.

3.11.2 Regulatory Setting

This section identifies and summarizes state and local 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.

3.11.2.1 Regional

Southern California Association of Governments – 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (Connect SoCal)

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 September 3,2020, SCAG adopted the 2020-2045 RTP/SCS (Connect SoCal). The 2020-2045 RTP/SCS (Connect SoCal) 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 goals from the 2020-2045 RTP/SCS (Connect SoCal) are considered applicable to the proposed project:

- Goal 5: Reduce GHG emissions and improve air quality
- Goal 10: Promote conservation of natural and agricultural lands and restoration of habitats

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 on 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; Renewable Energy 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.

Imperial County received funding from the CEC's Renewable Energy and Conservation Planning Grant to amend and update the County's General Plan in order to facilitate future development of renewable energy 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 greenhouse gas emissions, develop alternative fuel sources and implement its Renewable Portfolio Standard. The County has recently prepared an update to the Geothermal/Alternative Energy and Transmission Element of its General Plan, called the Renewable Energy and Transmission Element. This Element is designed to provide guidance and approaches with respect to the future siting of renewable energy projects and electrical transmission lines in the County. The County adopted this element in 2016.

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 3.11-2, the project site is located outside of 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 3.11-2. 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.

Table 3.11-2. Project Consistency with Applicable General Plan Policies

Applicable Policies	Consistency Determination	Analysis
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 consistent with County requirements and mitigation measures prescribed in Section 3.10, Hydrology/Water Quality, of the EIR. Once the project is operational, water would be required for solar panel washing and fire protection. The project would receive water service from the IID. Water would be purchased from the IID and delivered to the project site by water trucks. The proposed project would not require an operations and maintenance building. Therefore, no septic or other wastewater disposal systems would be required for the project.
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 Renewable Energy 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 that for renewable energy 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 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 3.11-2, the northern portion of the project site is located within the Geothermal Overlay Zone. However, the entire project site is located outside of the RE Overlay Zone. Therefore, the applicant is requesting a General Plan Amendment to include/classify all five project parcels into the RE Overlay Zone. With the approval of the General Plan Amendment, CUP, and zone change to A-2-REG the proposed solar project can be implemented.

Applicable Policies	Consistency Determination	Analysis
Public Facilities, Objective 8.9. Require necessary public utility rights-of-way when appropriate.	Consistent	The project would include the dedication of necessary ROW 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	Because of the minimal grading of the site during construction and limited travel over the site during operations, local vegetation is anticipated to remain largely intact which will assist in dust suppression. Furthermore, 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 the AQAP in more detail.
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	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 level of service at affected intersections, roadway segments, and highways. The project does not propose any forms for residential or commercial development and therefore would not require new forms of alternative transportation to minimize impacts on existing roadways.
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	As described in Section 3.13, Transportation, a traffic study was prepared for the project and demonstrated that project operations would have a less than significant impact on the circulation network.
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 project to maintain conformance with County noise standards.
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	The project would be required to comply with the County's noise standards during both construction and operation.

Applicable Policies	Consistency Determination	Analysis
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 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. The power generated by the proposed 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 renewable energy 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 3.5, Biological Resources, there are potentially sensitive biological resources located within the project site. However, with the implementation of mitigation identified in Section 3.5, Biological Resources, these impacts would be reduced to a level less than significant.
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 resource inventory was prepared for the project site. As discussed in Section 3.6, Cultural Resources, the proposed project has the potential to encounter undocumented archaeological resources and human remains. Mitigation Measures CUL-1 through CUL-7 have been identified to reduce potential impacts to a level less than significant.
Conservation of Water Resources. Objective 6.1: Ensure the use and protection of all the rivers, waterways, and groundwater sources in the County for use by future generations.	Consistent	As discussed in Section 3.10, Hydrology/Water Quality, the project will prepare a site-specific drainage plan and water quality management plan to minimize adverse effects to local water resources; as well as coordinate with the IID for water consumption during construction and operation of the project.
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.

Applicable Policies	Consistency Determination	Analysis
Protection of Air Quality and Addressing Climate Change. 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 proposed project would comply with the ICAPCD Air Quality CEQA Handbook's Mandatory Standard Air Quality Measures (Applicant Proposed Measure AQ-1). Therefore, the proposed project is consistent with this objective.
Protection of Air Quality and Addressing Climate Change. 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 Air Quality Measures (Applicant Proposed Measure AQ-1). Therefore, the proposed project is consistent with this objective.
Protection of Open Space and Recreational Opportunities. Objective 8.2: Focus all new renewable energy development within adopted Renewable Energy Overlay Zones.	Consistent	As shown on Figure 3.11-2, the northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site is located outside of the RE Overlay Zone. The project applicant is requesting a General Plan Amendment and Zone Change to include/classify all five project parcels into the RE Overlay Zone. With the approval of the General Plan Amendment, Zone Change, and CUP, the proposed solar project can be implemented.
Renewable Energy and Transmission Element		
Objective 1.4: Analyze potential impacts on agricultural, natural, and cultural resources, as appropriate.	Consistent	This EIR has been prepared to meet the requirements of CEQA for purposes of evaluating the potential environmental impacts associated with the proposed project, which includes analysis on applicable environmental topics that analyze impacts on agricultural, natural, and cultural resources.
Objective 1.5: Require appropriate mitigation and monitoring for environmental issues associated with developing renewable energy facilities.	Consistent	Please refer to Section 3.3, Agricultural Resources, for a description of existing agricultural resources within the project site and a discussion of potential impacts attributable to the project. A biological resources report has been prepared for the project, which is summarized in Section 3.5, Biological Resources, along with potential impacts attributable to the project. With incorporation of mitigation identified in Sections 3.3, Agricultural Resources and 3.5, Biological Resources, less than significant impacts would result.

Applicable Policies	Consistency Determination	Analysis
Objective 1.6: Encourage the efficient use of water resources required in the operation of renewable energy generation facilities.	Consistent	Water use during construction would be used primarily for dust control, and obtained from local IID irrigation canals or laterals in conformance with IID construction water acquisition requirements. The project applicant will also coordinate with IID to purchase water needed for maintenance activities (i.e. PV module washing) to ensure efficient use of water resources.
Objective 1.7: Assure that development of renewable energy facilities and transmission lines comply with Imperial County Air Pollution Control District's regulations and mitigation measures.	Consistent	Because of the minimal grading of the site during construction and limited travel over the site during operations, local vegetation is anticipated to remain largely intact which will assist in dust suppression. Furthermore, dust suppression will be implemented including the use of water and soil binders during construction. Section 3.4, Air Quality, discusses the project's consistency with the ICAPCD 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 renewable energy infrastructure that would interconnect with existing and approved IID transmission infrastructure thereby maximizing the use of existing facilities.
Seismic and Public Safety Element		
Land Use Planning and Public Safety. 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 0.48 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.
Land Use Planning and Public Safety. Objective 1.1: Ensure that data on geological hazards is incorporated into the land use review process, and future development process.		
Land Use Planning and Public Safety. Objective 1.3: Regulate development adjacent to or near all mineral deposits and geothermal operations.		
Land Use Planning and Public Safety. 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.		
Land Use Planning and Public Safety. Objective 1.7: Require developers to provide information related to geologic and seismic hazards when siting a proposed project.		

Applicable Policies	Consistency Determination	Analysis
Emergency Preparedness. 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.		Additionally, a design-level geotechnical investigation would be conducted to evaluate the potential for site specific hazards associated with seismic activity.
Emergency Preparedness. Objective 2.2: Reduce risk and damage due to seismic hazards by appropriate regulation.		
Emergency Preparedness. Objective 2.5: Minimize injury, loss of life, and damage to property by implementing all state codes where applicable.		
Emergency Preparedness. 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.		
Water Element		
Protection of Water Resources from Hazardous Materials. 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 proposed project prepare a site-specific drainage plan and water quality management plan to minimize adverse effects to local water resources.
Protection of Water Resources from Hazardous Materials. 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 previous response for Water Element above.
Housing Element		
Not Applicable. The proposed project is a solar energy project and does not include the development of housing.		

Source: ICPDS 2008

AQAP = air quality attainment plan; CUP = conditional use permit; EIR = environmental impact report; GV = growth visioning; ICAPCD = Imperial County Air Pollution Control District; IID = Imperial Irrigation District; MW = megawatt; RE = renewable energy' ROW = right-of-way;

County of Imperial Land Use Ordinance

The County's Land Use Ordinance provides the physical land use planning criteria for development within the jurisdiction of the County. The Land Use Ordinance identifies the permitted and conditional

uses within a 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.

A-2 Zoning. As depicted on Figure 3.11-2, the solar energy facility site is located on a total of five privately-owned legal parcels zoned A-2-G (General Agriculture with a Geothermal Overlay). Pursuant to Title 9, Division 5, Chapter 8 (County of Imperial 2019a), the following uses are permitted in the A-2 zone subject to approval of a CUP from Imperial County: solar energy electrical generator, battery storage facility, electrical substations, communication towers, and facilities for the transmission of electrical energy.

RE Resources. According to Title 9, Division 17 of the Land Use Ordinance, the purpose of the RE Resources regulations are to "facilitate the beneficial use of renewable energy resources for the general welfare of the people of Imperial County and the State of California; to protect renewable energy resources from wasteful or detrimental uses; and to protect people, property, and the environment from detriments that might result from the improper use of renewable energy resources" (County of Imperial 2017).

Title 9, Division 17, includes the RE Overlay Zone, which authorizes the development and operation of renewable energy projects, with an approved CUP. Uses that are conditionally permitted require a CUP subject to the discretionary approval of the County Board of Supervisors (Board) per a recommendation by the County Planning Commission.

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 project site is located approximately 1.5 miles north of the Brawley Municipal Airport. However, the project site is outside of the airport compatibility zones of the Brawley Municipal Airport (County of Imperial 1996).

3.11.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to land use and planning, 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 land use and 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

Impact Analysis

Impact 3.11-1 Would the project physically divide an established community?

The project site is located in a sparsely populated portion of Imperial County. The following single-family residences are located in the project vicinity:

- Residences located near the northwest corner of the project site
- Two residences at the corner of N Best Road and Ward Road
- One residence across the proposed project's primary access road
- One residence across the northeast corner of the project site
- One residence (with a horse boarding/training facility) on the west side of N Best Avenue, located south of the project site)

However, there are no established residential communities located in the vicinity of the project site. The nearest established residential community is located approximately 1.7 miles southwest of the project site in the City of Brawley. 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 3.11-2 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?

SCAG 2020-2045 RTP/SCS (Connect SoCal)

As noted above, the 2020-2045 RTP/SCS (Connect SoCal) (SCAG 2020) identifies two goals which include reducing GHG emissions to improve air quality (Goal 5), and to promote conservation of natural and agricultural lands (Goal 10).

The 2020-2045 RTP/SCS (Connect SoCal), identifies strategies to support the goal of reducing regional GHG and improve air quality. Strategies include leveraging technological innovations including incorporating solar energy, hydrogen fuel cell power storage, and power generation. Once in operation, the proposed project would contribute to SCAG's goal in reducing GHG emissions and improving air quality.

The 2020-2045 RTP/SCS (Connect SoCal) also discusses the decline of agricultural land as an issue for the economy. As discussed in Section 3.3, Agricultural Resources, the majority of the project site is designated as Farmland of Statewide Importance, with a pocket of Prime Farmland and Farmland of Local Importance located in the southern portion of the project site. Approximately 1 acre of Unique Farmland occurs along the western boundary of the project site.

The project would temporarily convert Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to non-agricultural uses. However, as a condition of project approval (CUP condition), the project applicant or its successor in interest will be responsible for implementing a reclamation plan when the project is decommissioned at the end of its lifespan. The reclamation plan includes the removal, recycling, and/or disposal of all solar arrays, inverters, transformers, and other

structures on the project site, as well as restoration of the site to its pre-project condition. Therefore, the proposed project would not permanently convert Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to non-agricultural uses. Therefore, no impacts due to a conflict with the 2020-2045 RTP/SCS (Connect SoCal) would occur.

County of Imperial General

The County's General Plan applies to the solar energy facility, battery storage system, gentie, and supporting infrastructure 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 3.11-2. As shown in Table 3.11-2, the proposed project would generally be consistent with the goals and objectives of the General Plan.

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. 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, and as stated in the Renewable Energy and Transmission Element:

> 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. An amendment to the overlay zone would only be approved by the County Board of Supervisors if a future renewable energy project met one of the following two conditions:
>
> 1) Adjacent to the Existing RE Overlay Zone: An amendment may be made to allow for development of a future renewable energy 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
>
> 2) "Island Overlay": An amendment may be made to allow for development of a future renewable energy 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 renewable energy operation
>   - Would not result in any significant environmental impacts.

As shown on Figure 3.11-2, the northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site is located outside of the RE Overlay Zone. Therefore, the project applicant is seeking a zone change to include/classify all five project parcels into the Renewable Energy/Geothermal (REG) Overlay Zone (A-2-REG) and approval of a CUP by the County to allow for the construction and operation of the proposed solar energy facility with an integrated battery storage system. The project site is not located adjacent to an existing RE Overlay Zone; therefore, the project will need to meet the criteria identified for the "Island Overlay" to obtain approval of an amendment to the RE Overlay Zone. Table 3.11-3 provides an analysis of the project's consistency with the "Island Overlay" criteria.

With approval of the General Plan Amendment and Zone Change, the project applicant will be able to request for approval of a CUP to allow the construction and operation of the proposed solar facility.

Table 3.11-3. Project Consistency with "Island Overlay" Criteria

Criteria	Criteria Met?
Is located adjacent (sharing a common boundary) to an existing transmission source?	There are existing IID power poles along N Best Avenue and Andre Road. As described in Chapter 2, the project includes a gen-tie line that would connect to the IID's existing North Brawley Geothermal Power Plant substation, located west of the project site's southern boundary at Hovley Road and Andre Road. The gen-tie route would be approximately 1.8 miles.
Consists of the expansion of an existing renewable energy operation?	As described in Chapter 2, the project includes a gen-tie line that would connect to the IID's existing North Brawley Geothermal Power Plant substation, located west of the project site's southern boundary at Hovley Road and Andre Road. The gen-tie route would be approximately 1.8 miles. The proposed project would be capable of generating up to 40 MW of solar energy, thereby expanding renewable energy generation in the area.
Would not result in any significant environmental impacts?	As detailed in Sections 3.2 through 3.15 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.

EIR = environmental impact report; MW = megawatt; RE = renewable energy

County of Imperial Land Use Ordinance

Development of the solar energy facility and supporting infrastructure is subject to the County's zoning ordinance. The solar energy facility is located on five privately-owned legal parcels zoned A-2-G. Pursuant to Title 9, Division 5, Chapter 8 the following uses are permitted in the A-2 zone subject to approval of a CUP from Imperial County: solar energy electrical generator, battery storage facility, and facilities for the transmission of electrical energy (County of Imperial 2020). Therefore, with approval of a CUP, the proposed project would not conflict with the County's zoning ordinance.

Imperial County Airport Land Use Compatibility Plan

As previously discussed above, the project site is located approximately 1.5 miles north of the Brawley Municipal Airport. According to Figure 3A (Compatibility Map – Brawley Municipal Airport) of the ALUCP, no portion of the project site is located within the Brawley Municipal Airport land use compatibility zones (County of Imperial 1996). 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.

3.11.4 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. No impacts on land use and planning are anticipated to occur during decommissioning and restoration of the project site. Decommissioning and restoration would not physically divide an established community or conflict with any applicable land use plan, policy, or regulation. Through the project's decommissioning and subsequent restoration to pre-project conditions, the uses of the project site (agricultural) would remain consistent with the General Plan and zoning designations of the site, which allow agricultural uses. Therefore, no impact is identified and no mitigation is required.

Residual

With mitigation as prescribed in other sections of this EIR, issues related to the conversion of Important Farmland to non-agricultural use would be mitigated and reduced to a less than significant level. Similarly, with the approval of a CUP and reclamation plan to address post-project decommissioning, the project would generally be consistent with applicable federal, 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.

3.12 Public Services

This section includes an evaluation of potential impacts for identified public services that could result from implementation of the proposed project. Public services typically include fire protection, law enforcement, schools, and other public facilities such as parks, libraries, and post offices. Each subsection includes descriptions of existing facilities, service standards, and potential environmental impacts resulting from implementation of the proposed project, and mitigation measures where appropriate. Section 3.15, Utilities/Service Systems, of this EIR evaluates impacts related to water supply, wastewater, and other utilities. The impact assessment provides an evaluation of potential adverse effects to public services based on criteria derived from the CEQA Guidelines in conjunction with actions proposed in Chapter 2, Project Description.

The IS/NOP prepared for this EIR determined that the project would not result in impacts on schools, parks and other public facilities (libraries and post offices). Therefore, these issue areas will not be discussed further and are included in Chapter 6, Effects Found Not Significant, of this EIR. The IS/NOP is included in Appendix A of this EIR.

3.12.1 Existing Conditions

The project site is located in unincorporated County, approximately one mile north from the City of Brawley's jurisdictional limit. The project site is located within the Imperial County Fire Department (ICFD)/Office of Energy Services (OES) and the Imperial County Sheriff Department's areas of service.

Fire Protection Services

The project site is located within the ICFD/OES area of service. ICFD/OES currently has nine fire stations and six contracting agencies serving the entire 4,500 square miles of unincorporated Imperial County. The nine ICFD stations are located in the communities of Heber, Seeley, Ocotillo, Palo Verde, Niland, Winterhaven, Salton City, and the City of Imperial (ICFD 2019). Each of the county fire stations is staffed with a Captain, Firefighter, and Reserve Firefighter with the only exception being the Palo Verde station that is staffed with a Firefighter and Reserve Firefighter. Every fire station has a Type I engine as its primary apparatus. The City of Imperial and Heber stations also house a Ladder Truck along with the Type I engine. The Seeley and Heber stations also house Type III engines. The ICFD Emergency Units strive to respond immediately after receiving the initial tone for service. The actual response time would be determined by the area of response throughout the vast response area covered.

The closest fire station to the project is site is the Imperial station located at 2514 La Brucherie Road in Imperial, California. This station is located approximately 13.5 miles southwest of the project site.

Police Protection Services

Imperial County's Sheriff's Department is responsible for police protection services in the unincorporated areas of Imperial County and the City of Holtville. The patrol function is divided between North County Patrol, South County Patrol, East County Operations, and City of Holtville. Deputies assigned to the Patrol Divisions are the "first responders" to a call for law enforcement service. The main patrol station is located in El Centro on Applestill Road. Sheriff substations are located in the communities of Brawley, Niland, Salton City, and Winterhaven with resident deputies

located in the unincorporated community of Palo Verde. Under an existing mutual aid agreement, additional law enforcement services would be provided if and when required by all of the cities within the county, as well as with Border Patrol and the California Highway Patrol. The California Highway Patrol provides traffic regulation enforcement, emergency accident management, and service and assistance on state roadways and other major roadways in the unincorporated portions of Imperial County.

The closest sheriff's station to the project site is located at 220 Main St #207 in Brawley, California. This station is approximately 3 miles southwest of the project site.

3.12.2 Regulatory Setting

This section identifies and summarizes federal, state, and local laws, policies, and regulations that are applicable to the project.

State

Fire Codes and Guidelines

The California Fire Code (Title 24, Part 9 of the CCR) establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout the State of California. The Fire Code includes regulations regarding fire resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

Local

Imperial County General Plan

The Imperial County General Plan Seismic and Public Safety Element contains goals and objectives that relate to fire protection and law enforcement pertinent to the proposed project. An analysis of the project's consistency with the applicable goals and objectives of the Seismic and Public Safety Element is provided in Table 3.12-1.

Table 3.12-1. Project Consistency with Applicable General Plan Seismic and Public Safety Element

Applicable General Plan Goals/Policies	Consistency Determination	Analysis
Goal 1: Include public health and safety considerations in land use planning.	Consistent	The project's CUP application and site plan will be reviewed by the Imperial County Fire Department to ensure that the facility complies with state and local fire codes and fire safety features are met. Additionally, the project applicant has included site design measures that

Table 3.12-1. Project Consistency with Applicable General Plan Seismic and Public Safety Element

Applicable General Plan Goals/Policies	Consistency Determination	Analysis
Objective 1.8: Reduce fire hazards by the design of new developments		meet the County Fire Department's standards which would reduce the potential for fire hazards. This includes constructing a secondary emergency access road, providing all-weather surface roads, and locked gates that can be opened by any emergency responders.
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.	Consistent	See response above for a discussion on how the project would implement all state and local fire codes and provide site design measures to reduce the potential for fire hazards. With regards to public safety and security, the project would include 6-foot tall perimeter security fencing with barbed wire and a motion detection system and closed-circuit camera system. In addition, the points of ingress/egress would be accessed via locked gates that can be opened by any emergency responders.
Objective 2.5: Minimize injury, loss of life, and damage to property by implementing all state codes where applicable.		

Source: ICPDS 1997

CUP = conditional use permit

Imperial County Office of Emergency Services – Multi-Hazard Mitigation Plan

The ICFD is the local Office of Emergency services in Imperial County. Imperial County has developed the multi-jurisdictional hazard mitigation plan (MHMP) to create a safer community. The purpose of the MHMP is to significantly reduce deaths, injuries, and other disaster losses caused by natural and human-caused hazards in Imperial County. The MHMP describes past and current hazard mitigation activities and outlines goals, strategies, and actions for reducing future disaster losses. The Imperial County MHMP is the representation of the County's commitment to reduce risks from natural and other hazards and serves as a guide for decision-makers as they commit resources to reducing the effects of natural and other hazards. The jurisdictions included in the MHMP include the cities of Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial, and Westmoreland, the IID and the Imperial County Office of Education. The MHMP complies with all federal, state, and local laws guiding disaster management.

County Evacuation Plans

The Imperial County Emergency Operations Plan (EOP) provides guidance and procedures for the County to prepare for and respond to emergencies. The EOP designates the Sheriff's Department as having jurisdiction in an emergency involving evacuation within the unincorporated areas of the county and within contract cities.

3.12.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to public services, 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 public services are considered significant if the project would result in the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- Fire protection
- Police protection
- Schools
- Parks
- Other public facilities

As mentioned previously, it was determined through the preparation of an IS/NOP that the project would not result in impacts on schools, parks, or other public facilities. Therefore, those issue areas will not be discussed further and are included in Chapter 6, Effects Found Not Significant, of this EIR.

Methodology

Evaluation of potential fire and police service impacts of the proposed project was based on consultation with the ICFD, Sheriff's Department and review of other development projects in the area.

Impact Analysis

Impact 3.12-1 ***Would the project result in 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 fire protection?***

The project would result in a minor increase in demand for fire protection services over existing levels. No operation and maintenance (O&M) buildings are being proposed. Additional auxiliary facilities would include lighting, grounding, backup uninterruptable power supply (UPS) systems and diesel power generators, fire and hazardous materials safety systems, security systems, chemical safety systems, and emergency response facilities. The project also includes a battery energy storage system (BESS), located near the proposed substation. The proposed project's BESS component would be placed on a 54,000 square-foot concrete pad. The BESS would consist of 12 banks of batteries totaling up to 432 enclosures. Each of the enclosures would utilize self-contained liquid cooling systems and include built-in fire suppression systems.

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. As discussed in Chapter 2, Project Description, primary access to the project site would be located off N Best Avenue. A secondary emergency access road would be located in the northwest portion of the project site. An all-weather surface access road would surround the perimeter of the project site, as well as around solar blocks no greater than 500 by 500 feet. Points of ingress/egress would be accessed via locked gates that can be opened by any emergency responders. Although the proposed project would be designed, constructed, and operated in accordance with applicable fire protection and other environmental, health, and safety requirements (e.g., CPUC safety standards), the project applicant will be required to consult and coordinate with the Fire Department to address any fire safety and service concerns (i.e, BESS) so that adequate service is maintained. While the proposed project may result in an increase in demand for fire protection service, with installation of internal fire prevention systems and ICFD consultation, 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.

Imperial County requires payment of impact fees for new development projects. Fire Impact Fees are imposed pursuant to Ordinance 1418 §2 (2006), which was drafted in accordance with the County's TischlerBise Impact Fee Study. The ordinance has provisions for non-residential industrial projects based on square footage. The project applicant will be required to pay the fire protection services' impact fees. These fees would be included in the Conditions of Approval for the CUP. No new fire stations or facilities would be required to serve the project. Impacts would therefore be less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.12-2 ***Would the project result in 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 police protection?***

The project does not include a residential component; therefore, it would not result in a substantial addition of residents to the Sheriff Department's service area. Although the potential is low, the proposed project may attract vandals or other security risks and the increase in construction related traffic could increase demand on law enforcement services. Six-foot high chain link fencing topped with barbed wire would be installed around the perimeter of the project site at the commencement of construction and site access would be limited to authorized site workers. Points of ingress/egress would be accessed via locked gates. In addition, a motion detection system and closed-circuit camera system may also be installed. The site would be remotely monitored 24 hours per day, 7 days per week. 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.

The proposed project may result in a temporary increase in demand for law enforcement service due to the presence of construction equipment and material being stored on-site. With installation of the proposed security features on the project site, the proposed 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. 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.

Mitigation Measure(s)

No mitigation measures are required.

3.12.4 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. Decommissioning and restoration of the project site would occur and would not result in an increased need for fire and police protection services. Decommissioning of the project would occur through implementation of a required Reclamation Plan. These activities would be in the form of disassembling project components, including the BESS, and then restoring the site to pre-project conditions, both of which would not create an increase in demand for police or fire service beyond the level required for the proposed solar operations. Therefore, no impact is identified and no mitigation is required for this phase.

Residual

With payment of the development impact fees for fire and police protection services, project impacts would be less than significant. No mitigation is required, and no residual significant and unmitigated impacts would result.

3.13 Transportation

This section addresses the proposed project's impacts on traffic and the surrounding roadway network associated with construction and operation of the proposed project. The following discussion describes the existing conditions in the surrounding area, the existing federal, state, and local regulations regarding transportation, and an analysis of the potential impacts of the proposed project.

Information in this section is summarized from the *Traffic Letter Report – Brawley Solar Project* prepared by Linscott, Law & Greenspan (LLG). This report is included in Appendix G of this EIR.

3.13.1 Existing Conditions

Existing Circulation Network

The following is a description of the nearby roadway network:

North Best Avenue is an unclassified roadway in the Imperial County Circulation Element Plan. It is currently constructed as a two-lane north-south roadway in the study area. There is no posted speed limit. There are no bike lanes provided.

Ward Road is an unclassified roadway in the Imperial County Circulation Element Plan. It is currently constructed as a two-lane east-west roadway in the study area. There is no posted speed limit. There are no bike lanes provided.

State Route 111 (SR-111) begins at the International Border between Mexico and the United States traveling north with two travel lanes in each direction. SR 111 (Imperial Avenue) is classified as a 4-Lane primary north/south arterial in the City of Calexico Circulation Element. Class II bicycle lanes are provided north of SR 98. Bus stops are not provided. Curb, gutter, and sidewalks are provided south of SR 98. Curbside parking is permitted intermittently south of SR 98, on both sides of the roadway. The speed limit is posted at 55 mph.

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. IVT Routes are defined 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 2021).

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 IVT Gold Line serves the Brawley area with 31 bus stops. The nearest IVT bus stop is located at Flammang Avenue and Gutierrez Court, which is approximately two miles southwest of the project site.

Bicycle Facilities

The project site is located within a rural portion of Imperial County. There are no bicycle facilities in the immediate proximity of the project site.

Project Site Access

Regional access to the site would be provided by SR-78 and SR-111. As shown in Figure 2-3, primary access to the project site would be located off N Best Avenue. A secondary emergency access road would be located in the northwest portion of the project site.

3.13.2 Regulatory Setting

This section identifies and summarizes laws, policies, and regulations that are applicable to the proposed project.

State

Senate Bill 743

In September 2013, the Governor's Office signed Senate Bill 743 into law, starting a process that fundamentally changes the way transportation impact analysis is conducted under CEQA. Within the State's CEQA Guidelines, these changes include the elimination of Auto Delay, level of service (LOS), and similar measurements of vehicular roadway capacity and traffic congestion as the basis for determining significant impacts. The guidance identifies vehicle miles traveled (VMT) as the most appropriate CEQA transportation metric, along with the elimination of Auto Delay/LOS for CEQA purposes statewide. The justification for this paradigm shift is that Auto Delay/LOS impacts lead to improvements that increase roadway capacity and therefore induce more traffic and greenhouse gas emissions.

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 within the County, Caltrans District 11 is responsible for maintaining and managing I-8, SR-78 and SR-111.

Regional

Southern California Association of Governments (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (Connect SoCal)

On September 3,2020, SCAG adopted the 2020-2045 RTP/SCS (SCAG 2020). 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 2020-2045 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).

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.

3.13.3 Impacts and Mitigation Measures

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to transportation 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

Methodology

The assessment evaluates the proposed project's trip generated during and after construction, and roadway conditions for roads that would be utilized to access the project site for construction.

Project Trip Generation

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. During peak construction activities, 120 workers and a maximum of 60 trucks at a time would be required.

Daily and peak hour trip generation rates and in/out splits were calculated for the peak construction period using detailed data developed for analysis of the project's impacts. Construction activities would generally occur during a 12-hour-shift day. A worst-case scenario in which all employees would arrive prior to the morning peak commuter period (7:00 – 9:00 a.m.) and depart within the evening peak period (4:00 – 6:00 p.m.) was assumed. Truck trips are anticipated to be distributed generally evenly throughout the 12-hour-shift day. In order to provide a conservative analysis, all employees were assumed to arrive and depart during peak commute periods. In addition, no carpooling for construction employees was assumed.

A passenger-car-equivalent (PCE) factor of 2.5 was applied to heavy vehicles (per the Highway Capacity Manual or HCM) to account for their reduced performance characteristics in the traffic stream (e.g. starting, stopping, and maneuvering). This information was used in calculating the project-generated average daily traffic (ADT).

Table 3.13-1 tabulates the total daily and peak hour project traffic volumes. The project's construction trip generation is calculated to be 540 ADT with 127 inbound/19 outbound trips during the AM peak hour and 19 inbound/ 127 outbound trips during the PM peak hour. These values include the heavy-vehicle PCE-adjustment.

Once fully constructed, the project would be operated on an unstaffed basis and be monitored remotely from the existing Brawley Geothermal Power Plant control room, 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 approximately two employees would only be onsite up to four times per year to wash the solar panels.

Table 3.13-1. Construction Project Trip Generation

Use	Size	PCE [b]	Daily Trips		AM Peak Hour		PM Peak Hour	
					Volume		Volume	
			Rate (In + Out)	Volume (ADT)[a]	In	Out	In	Out
Personnel	120	1	2.0/personnel	240	114	6	6	114
Trucks	60	2.5	2.0/truck	300	13	13	13	13
Subtotal	**--**	**--**	**--**	**540**	**127**	**19**	**19**	**127**

Notes: a – ADT = Average daily traffic; b – PCE = Passenger car equivalent
1. To estimate the employee traffic, it is conservatively assumed that 100% of the employee traffic would access the work area during the same commuter peak hours between 7:00 – 9:00 a.m. & 4:00 – 6:00 p.m.
2. The In/Out splits assumed are 95:5 during AM peak hour and 5:95 during the PM peak hour.
3. Truck trips are estimated to occur relatively evenly throughout a 12-hour construction hours proposed for the project. For 30 trucks, this calculates to approximately 2.3 trucks/hour without PCE.
4. A passenger-car-equivalent (PCE) factor of 2.5 was applied to heavy vehicles (per the Highway Capacity Manual or HCM)
Source: Appendix G of this EIR

Impact Analysis

Impact 3.13-1 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 proposed project, the maximum number of trip ends generated on a daily basis would be approximately 540 trips. Based on the low amount of construction trips generated and low existing traffic volumes on area roadways, no substantial transportation impacts are anticipated. Implementation of the proposed project would not require any public road widening to accommodate vehicular trips associated with the proposed project (construction phase and operational phase), while maintaining adequate LOS. Additionally, future operations and maintenance would be conducted remotely, with minimal trips to the project site for panel washing and other solar maintenance. Approximately two employees would be onsite up to four times per year to wash the solar panels, which equates to 8 trips per employee or 16 trips annually. There is no regular bus service to the general area and project-related construction and operations and maintenance phases would not impact mass transit. The proposed project would not interfere with bicycle facilities because the proposed project is located in a rural portion of the County with no existing or potential future designated bike routes in the immediate vicinity. Therefore, the proposed project would not result in any significant impacts to any roadway segments or transportation related facilities/infrastructure within the project area during construction and operation; and would not conflict with a program plan, ordinance, or policy as it relates to traffic and transportation. Impacts are considered less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.13-2 Would the project conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Section 15064.3(b) of the CEQA Guidelines provides guidance on determining the significance of transportation impacts and focuses on the use of vehicle miles traveled (VMT), which is defined as the amount and distance of automobile travel associated with a project.

Although the proposed project would increase VMT during the construction phase as a result of trips made by construction workers and transportation of construction material and equipment, these increases are temporary in nature. Further, as discussed above, operation of the proposed project would only require intermittent maintenance (including inspection, panel washing, and vegetation removal), which would be a nominal amount of vehicle trips generated (16 trips annually). Therefore, the proposed project would not conflict or be inconsistent with Section 15064.3(b) of the CEQA Guidelines and this impact is considered less than significant.

Mitigation Measure(s)

No mitigation measures are required.

Impact 3.13-3 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)?

Project construction would include the renovation of existing dirt roads to all-weather surfaces (to meet the County standards) from N Best Avenue to the City of Brawley wastewater treatment plant. 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 would surround the site within the fencing.

As shown in Figure 2-3, primary access to the project site would be located off N Best Avenue. A secondary emergency access road would be located in the northwest portion of the project site. Access roads would be constructed with an all-weather surface, to meet the County Fire Department's standards. An all-weather surface access road would surround the perimeter of the project site, as well as around solar blocks no greater than 500 by 500 feet.

At the time of final design for the proposed project, and as a Condition of Approval of the proposed project, the applicant will submit a final Haul Route Study that identifies what road improvements, if any, are requested by Department of Public Works and a cost estimate. The applicant would work with the 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 the roads and access points listed above, 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 3.13-4 Would the project result in inadequate emergency access?

PV panels would be spaced to maintain proper clearance for emergency access. Internal access roads would be constructed along the perimeter fence and solar panels to facilitate vehicle access and maneuverability for emergency unit vehicles. Access roads would be constructed with an all-weather surface, to meet the County Fire Department's standards. The access roads would also have turnaround areas at any dead-end to allow clearance for fire trucks per fire department standards. Based on this context, impacts on this issue area are considered less than significant.

Mitigation Measure(s)

No mitigation measures are required.

3.13.4 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. As presented above, construction traffic would not result in a significant impact on any of the project area roadway segments, intersections, and freeway segments because of the low volume of traffic. A similar scenario would occur during the decommissioning and site restoration stage for the proposed project. ADT would be similar to or less than the ADT 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 pre-project conditions. 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 proposed project.

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3.14 Tribal Cultural Resources

This section discusses 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 *Archaeological and Paleontological Assessment Report for the Brawley Solar Project* prepared by Chambers Group, Inc. This report is included in Appendix E of this EIR.

3.14.1 Existing Conditions

Tribal cultural resources are defined as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources (CRHR); or included in a local register of historical resources; or a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant. Historical resources, unique archaeological resources, or non-unique archaeological resources may also be tribal cultural resources if they meet these criteria (PRC Section 21074).

Tribal Cultural Setting

See Section 3.6, Cultural Resources of this EIR and the *Archaeological and Paleontological Assessment Report for the Brawley Solar Project* (Appendix E of this EIR) for a description of the regional ethnohistory.

Sacred Lands File Results

The California Native American Heritage Commission (NAHC) identifies, catalogs, and protects Native American cultural resources on private and public lands in California. Cultural resources include graves, cemeteries, and places of special religious or social significance to Native Americans. The NAHC also records the historical territories of state recognized tribes into a database called the Sacred Lands File (SLF). A records search of the SLF is conducted to ensure that the tribes potentially affected by a project are properly notified and consulted.

A SLF search request was submitted on October 2, 2020 to the California NAHC. The search results were received on October 28, 2020, and were positive. The NAHC response provided contact information for Native American tribes that may have information on cultural resources on the project site.

Tribal Notification

Pursuant to Assembly Bill (AB) 52, California Native American tribes traditionally and cultural affiliated with the project area can request notification of projects in their traditional cultural territory. The NAHC enclosed a list of Native American groups and individuals who may be able to provide information about Native American cultural resources in the vicinity of the project site.

Pursuant to Senate Bill (SB) 18, 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.

In accordance with AB 52 and SB18, the County provided notification of the proposed project to the following Native American tribes via certified mail on August 4, 2021:

- Barona Group of the Capitan Grande
- Campo Band of Diegueno Mission Indians
- Ewiiaapaayp Band of Kumeyaay Indians
- Iipay Nation of Santa Ysabel
- Inja-Cosmit Band of Indians
- Jamul Indian Village
- Kwaaymii Laguna Band of Mission Indians
- La Posta Band of Diegueno Mission Indians
- Manzanita Band of Kumeyaay Nation
- Mesa Grande Band of Diegueno Mission Indians
- Quechan Tribe of the Fort Yuma Reservation
- San Pasqual Band of Diegueno Mission Indians
- Sycuan Band of Kumeyaay Nation
- Viejas Band of Kumeyaay Indians

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.

3.14.2 Regulatory Setting

This section identifies and summarizes federal, state, and local laws, policies, and regulations that are applicable to the project.

Federal

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

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.

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.

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.

3.14.3 Impacts and Mitigation Measures

This section presents the significance criteria used for considering project impacts related to tribal cultural 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 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

Impact Analysis

Impact 3.14-1 ***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 SLF search request was submitted on October 2, 2020 to the California NAHC. The search results were received on October 28, 2020 and were positive.

In accordance with AB 52 and SB18, the County provided notification of the proposed project to 14 Native American tribes (see complete list in Section 3.14.1) via certified mail on August 4, 2021. 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. As stated in Section 3.6 Cultural Resources, potential impacts to archaeological resources would be less than significant with implementation of Mitigation Measures CUL-1 through CUL-6. Impacts specifically related to tribal cultural resources would be less than significant.

Mitigation Measure(s)

No mitigation measures are required.

3.14.4 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. No grading or significant landform modifications would be required during decommissioning activities upon site restoration in the future. No impact on tribal cultural resources would occur.

Residual

As described above, impacts specifically related to tribal cultural resources would be less than significant. No mitigation is required and no residual unmitigated impacts would occur with implementation of the proposed project.

3.15 Utilities and 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. DuBose Design Group prepared the *Water Supply Assessment* (WSA) for the Brawley Solar Energy Facility. This report is included in Appendix H 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. Therefore, these impacts are not addressed in detail in this EIR; however, the rationale for eliminating these issues is discussed in Chapter 6.0, Effects Found Not Significant.

3.15.1 Existing Conditions

The Imperial Valley area is located within the south-central part of Imperial County and is bound by Mexico on the south, the Algodones Sand Hills on the east, the Salton Sea on the north and San Diego County on the northwest, and the alluvial fans bordering the Coyote Mountains and the Yuha Desert to the southwest. Imperial Valley depends on the Colorado River for its water, which the Imperial Irrigation District (IID) transports, untreated, to delivery gates for agricultural, municipal, industrial (including geothermal and solar energy), environmental (managed marsh), recreational (lakes), and other non-agricultural uses. IID supplies the cities, communities, institutions and Golden State Water (which includes all or portions Calipatria, Niland, and some adjacent Imperial County territory) with untreated water that they treat to meet state and federal drinking water guidelines before distribution to their customers (Appendix H of this EIR).

The project site is located within IID's Imperial Unit and district boundary and as such is eligible to receive water service. IID has adopted an Interim Water Supply Policy (IWSP) for Non-Agricultural Projects, from which water supplies can be contracted to serve new developments within IID's water service area. The IWSP sets aside 25,000 acre-feet annually (AFY) of IID's Colorado River water supply to serve new non-agricultural projects. As of October 2021, a balance of 23,800 acre-feet per year (AFY) remain available under the IWSP for new non-agricultural projects ensuring reasonably sufficient supplies for such projects. Water for the project site will continue to be supplied by the adjacent Best Canal Lateral X through an IWSP Water Supply Agreement with IID to process the untreated Colorado River water for the proposed project. IID delivers untreated Colorado River water to the project site for agricultural uses through the following gates and laterals. The 10-year record for 2011-2020 of water delivery accounting is shown in Table 3.15-1.

Table 3.15-1. Historic 10-Year Historic Delivery (AFY): 2011 through 2020

Canal/Gate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Best 115	0	0	226.9	412.3	435.8	425.0	307.9	513.8	417.3	317.2
Best 114	0	0	136.9	230.9	259.2	257.0	262.0	340.9	381.1	247.2
Best 113	0	0	111.4	286.1	212.8	223.4	350.5	282.8	197.2	247.5
Best 110	0	0	127.4	161.4	172.6	142.4	121.9	171.0	204.5	163.0
Total	**0**	**0**	**602.6**	**1090.7**	**1080.4**	**1047.8**	**1042.3**	**1308.5**	**1200.1**	**974.9**

Source: Appendix H of this EIR
AF = acre-feet per year

3.15.2 Regulatory Setting

This section identifies and summarizes laws, policies, and regulations that are applicable to the proposed 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.

After review of Water Code Section 10912, the solar facility is deemed a "project" because it is a proposed industrial use occupying more than 40 acres of land.

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) 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.

Local

Imperial Integrated Regional Water Management Plan

The Imperial Integrated Regional Water Management Plan (IRWMP) serves as the governing document for regional water planning to meet present and future water resource needs and demands by addressing such issues as additional water supply options, demand management and determination and prioritization of uses and classes of service provided. In November 2012, the Imperial County Board of Supervisors approved the Imperial IRWMP, and the City of Imperial City Council and the IID Board of Directors approved it in December 2012. Through the IRWMP process, IID presented to the region stakeholders options in the event long-term water supply augmentation is needed, such as water storage and banking, recycling of municipal wastewater, and desalination of brackish water.

Imperial Irrigation District Interim Water Supply Policy for Non-Agricultural Projects

The IWSP was adopted by the IID Board on September 29, 2009. The IWSP provides a mechanism to address water supply requests for projects being developed within the IID service area. The IWSP designates up to 25,000 AFY of IID's annual Colorado River water supply for new non-agricultural projects, provides a mechanism and process to develop a water supply agreement for any appropriately permitted project, and establishes a framework and set of fees to ensure the supplies used to meet new demands do not adversely affect existing users by funding water conservation or augmentation projects, as needed.

Depending on the nature, complexity, and water demands of the proposed project, new projects may be charged a one-time reservation fee and an annual water supply development fee for the contracted water volume used solely to assist in funding new water supply projects. All new industrial use projects are subject to the fee, while new municipal and mixed-use projects shall be subject to the fee if the project water demands exceed certain district-wide average per capita use standards. The applicability of the fee to mixed-use projects will be determined by IID on a case-by-case basis, depending on the proportion of types of land uses and water demand proposed for a project.

Temporary Land Conversion Fallowing Policy

The Temporary Land Conversion Fallowing Policy was adopted by the Board on October 28, 2013, to provide a mechanism for IID to administer apportionment of the district's quantified annual supply of Colorado River water; IID board approved a resolution repealing the Equitable Distribution Plan (EDP) on February 6, 2018.

In order to facilitate new development and economic diversity in Imperial County; as well as ensure that the long-term, temporary, land use designations are conducive to a coordinated land use/water supply policy as envisioned in the Imperial IRWMP the IID Temporary Land Conversion Fallowing Policy was developed. This policy provides a framework for a temporary, long-term fallowing program to work in concert with the IWSP and provides direction for certain private projects that, if implemented, will temporarily remove land from agricultural production within the district's water service area include renewable solar energy and other non-agricultural projects. Such projects may need a short-term water supply for construction and decommissioning activities and longer-term water service for facility operation and maintenance or for treating to potable water standards.

County of Imperial General Plan

The Imperial County General Plan provides goals, objectives, policies, and programs regarding the preservation and use of water. Table 3.15-2 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 3.15-2. 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	Since the project would temporarily convert farmland into a non-agricultural use, the project would reduce the need for IID to fallow irrigation; thereby, reducing agricultural water demand.
Preservation of Water Resources, Objective 6.4: Eliminate potential surface and groundwater pollution through regulations as well as educational programs.	Consistent	Currently, groundwater quality in the region is poor. However, since the project would temporarily convert farmland into a non-agricultural use, the project would reduce the amount of water used on site; thereby, reducing potential surface and groundwater pollution from agricultural uses. Additionally, the project would be required to comply with NPDES permits and regulations to address pollutants from run-off that may result during construction and operation of the project.
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 for the project site will be used on site during construction, operation, and decommissioning/restoration for non-drinking non-potable water needs. Additionally, as further detailed in Section 3.15.3, the project would result in a decrease in water use compared to the current active agricultural uses on the project site.

Source: ICPDS 1993
IID = Imperial Irrigation District

3.15.3 Impacts and Mitigation Measures

Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to utilities and service systems are considered significant if any of the following occur:

Water Supply

- Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years

Methodology

The WSA (Appendix H of this EIR) was prepared using project-specific data to calculate the project's water consumption during construction and at build-out collectively ("operational").

Impact Analysis

Impact 3.15-1 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

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 3.15-3, the proposed project would require approximately 32.5 AFY of water during construction. This includes the 20,000 gallons of water that will need to be stored on the project site during construction per Imperial County Fire Standards.

OPERATIONS AND MAINTENANCE

As shown in Table 3.15-3, estimated annual water consumption for operation and maintenance of the proposed project, including periodic PV module washing, would be approximately 86.8 acre feet or 3.1 AFY, which would be trucked to the project site as needed. This includes the 180,000 gallons of water that will need to be stored on the project site during operations per Imperial County Fire Standards. No full-time site personnel would be required on-site during operations and approximately two employees would only be onsite up to four times per year to wash the solar panels to ensure optimum solar absorption by removing dust particles and other buildup.

DECOMMISSIONING

If at the end of the Power Purchase Agreement (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 3.15-3, total water demand during decommissioning is estimated to be 32.5 AFY.

TOTAL AND ANNUAL WATER DEMAND

According to the WSA (Appendix H of this EIR), the anticipated water demand for construction, operation, and decommissioning of the project is estimated to be 151.8 AF, for an annualized demand of 5.06 AFY for the 30-year project life (Table 3.15-3).

Table 3.15-3. Project Water Use

Water Use	Expected Years	Total
Construction Water[1]	1	32.5 AF
Total for Water Construction		32.5 AF
Processing, Daily Plant Operations & Mitigation[2]	28	3.1 AFY

Table 3.15-3. Project Water Use

Water Use	Expected Years	Total
Total Water Usage for Processing Daily Plant Operations & Mitigation		86.8 AF
Project Decommissioning	1	32.5 AF
Total for Project Decommissioning		32.5 AF
Total Water Usage for Project	30	151.8 AF
Amortized	30	5.06 AFY

Source: Appendix H of this EIR

1 – 20,000 gallons of water will need to be stored on site during construction per Imperial County Fire Standards.

2 – 180,000 gallons of water will need to be stored on site per Imperial County Fire Standards for operations.

AF = acre-feet; AFY = acre-feet per year

WATER SUPPLY

Water for the project site will be supplied by the adjacent Best Canal Lateral X through an IWSP Water Supply Agreement with IID to process the untreated Colorado River water for the proposed project. The IWSP sets aside 25,000 acre-feet annually (AFY) of IID's Colorado River water supply to serve new non-agricultural projects. As of October 2021, a balance of 23,800 AFY remain available under the IWSP for new non-agricultural projects ensuring reasonably sufficient supplies for such projects. As shown in Table 3.15-4, the proposed project's water demand during construction for a period of 1 year using approximately 32.5 AFY, represents approximately 0.03% of the annual unallocated supply set aside for new non-agricultural projects. The proposed project's total water demand for operations is approximately 3.1 AFY for 28 years and represents approximately 0.01% of the annual unallocated supply set aside for new non-agricultural projects. Decommissioning is expected to take 1 year and use approximately 32.5 AFY, representing approximately 0.03% of the annual unallocated supply set aside for new non-agricultural projects. As shown in Table 3.15-4, the project is expected to consume 151.8 AF for the 30-year lifespan of the project which would equate to 5.06 AFY amortized representing 0.02% of the annual unallocated supply set aside for new non-agricultural projects. Thus, the proposed project's estimated water demand would not affect IID's ability to provide water to other users in IID's water service area. 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 3.15-4. Amortized Project Water Summary

Project Phase	Project Water Use	Years	Total Combined (AF)	IWSP (AFY)	% of Remaining Unallocated IWSP per Year
Construction	32.5 AFY	1	32.5 AF	23,800 AFY	0.03%
Operations	3.1 AFY	28	86.8 AF	23,800 AFY	0.01%
Decommissioning	32.5 AFY	1	32.5 AF	23,800 AFY	0.03%

Total	5.06 AFY	30	151.8 AF	23,800 AFY	0.02%

Source: Appendix H of this EIR

Mitigation Measure(s)

No mitigation measures are required.

3.15.4 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. As shown in Table 3.15-3, total water demand during decommissioning is estimated to be 32.5 AFY. As described above, the proposed project's estimated water demand, which includes decommissioning, would not affect IID's ability to provide water to other users in IID's water service area. 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.

Residual

The proposed project would not result in significant impacts on the water supply of Imperial County; therefore, no mitigation is required. The proposed project will not result in residual impacts.

4 Analysis of Long-Term Effects

4.1 Growth-Inducing Impacts

In accordance with Section 15126.2(e) 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 expansions, 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 August 2021 was 19.4 percent (State of California Employment Development Department 2021b), which represents an approximately 1.3 percent decrease in unemployment from September 2019 (20.7 percent) (State of California Employment Development Department 2021b). 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 Section 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 local or regional 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(d), 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 30-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 Significant and Unmitigable Impacts

In accordance with CEQA Guidelines Section 15126(c), 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 significant and unmitigable 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 solar 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

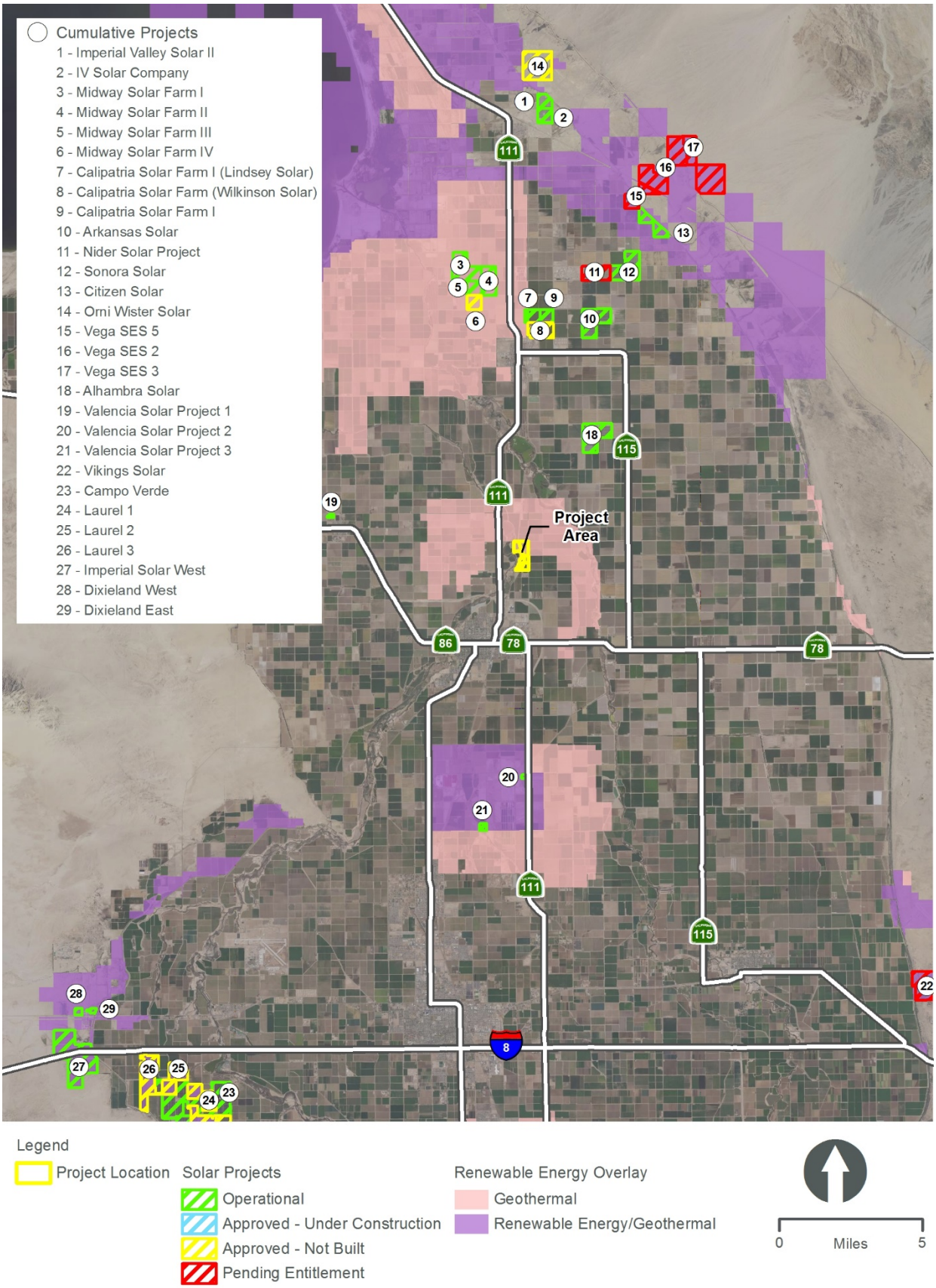

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Table 5-1. Projects Considered in the Cumulative Impact Analysis

Map Label[1]	Project Name	Project Type	Distance from Brawley Project Site	Size (acres)	Capacity (MW)	Status[2]
1	Imperial Valley Solar II	PV Solar Facility	Approximately 16.30 miles north	146	20	Operational
2	IV Solar Company	PV Solar Facility	Approximately 15.80 miles north	123	23	Operational
3	Midway Solar Farm I	PV Solar Facility	Approximately 10.30 miles northwest	480	50	Operational
4	Midway Solar Farm II	PV Solar Facility	Approximately 10.30 miles northwest	803	155	Operational
5	Midway Solar Farm III	PV Solar Facility	Approximately 10.20 miles northwest	160	20	Operational
6	Midway Solar Farm IV	PV Solar Facility	Approximately 9.29 miles northwest	160	15	Approved – Not Built
7	Calipatria Solar Farm I (Lindsey Solar)	PV Solar Facility	Approximately 8.60 miles north	148	20	Operational
8	Calipatria Solar Farm (Wilkinson Solar)	PV Solar Facility	Approximately 8.60 miles north	302	30	Approved – Not Built
9	Calipatria Solar Farm I	PV Solar Facility	Approximately 8.10 miles north	159	20	Operational
10	Arkansas Solar	PV Solar Facility	Approximately 8.50 miles northeast	481	50	Operational
11	Nider Solar Project	PV Solar Facility	Approximately 10.50 miles northeast	320	100	Pending Entitlement
12	Sonora Solar	PV Solar Facility	Approximately10.90 miles northeast	488	50	Operational
13	Citizens Solar	PV Solar Facility	Approximately 13.00 miles northeast	159	30	Operational
14	Ormat Wister Solar	PV Solar Facility	Approximately 17.30 miles north	160	20	Approved – Not Built
15	VEGA SES 5	PV Solar Facility	Approximately 13.30 miles northeast			Pending Entitlement

Table 5-1. Projects Considered in the Cumulative Impact Analysis

Map Label[1]	Project Name	Project Type	Distance from Brawley Project Site	Size (acres)	Capacity (MW)	Status[2]
16	VEGA SES 2	PV Solar Facility	Approximately 15.20 miles northeast	1,963 (combined total for VEGA 2, 3, and 5)	350 (combined total for VEGA 2, 3, and 5)	Pending Entitlement
17	VEGA SES 3	PV Solar Facility	Approximately 14.90 miles northeast			Pending Entitlement
18	Alhambra Solar	PV Solar Facility	Approximately 5.00 miles northeast	482	50	Operational
19	Valencia Solar Project 1	PV Solar Facility	Approximately 7.00 miles west	17	3	Operational
20	Valencia Solar Project 2	PV Solar Facility	Approximately 7.30 miles south	17	3	Operational
21	Valencia Solar Project 3	PV Solar Facility	Approximately 9.20 miles southwest	19	3	Operational
22	Vikings Solar	PV Solar Facility	Approximately 20.00 miles southeast	604	150	Pending Entitlement
23	Campo Verde	PV Solar Facility	Approximately 20.10 miles southwest	1,400	139	Operational
24	Laurel 1	PV Solar Facility	Approximately 21.60 miles southwest	1,396 (combined total for Laurel 1, 2, and 3)	325 (combined total for Laurel 1, 2, and 3)	Approved – Not Built
25	Laurel 2	PV Solar Facility	Approximately 22 miles southwest			Approved – Not Built
26	Laurel 3	PV Solar Facility	Approximately 22 miles southwest			Approved – Not Built
27	Imperial Solar West	PV Solar Facility	Approximately 22 miles southwest	1,145	150	Operational
28	Dixieland West	PV Solar Facility	Approximately 22 miles southwest	32	3	Operational
29	Dixieland East	PV Solar Facility	Approximately 22 miles southwest	31	2	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 October 5, 2021.

IID – Imperial Irrigation District; MW – megawatts; PV – photovoltaic

5.3.1 Aesthetics

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 relatively 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, 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. The visual changes associated with the project would not be located in proximity to any designated scenic vistas or scenic highways. The proposed project would be absorbed into the broader landscape that already includes agricultural development, electricity transmission, geothermal power plants, and the City of Brawley Wastewater Treatment Plant. 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 Agricultural Resources

Cumulative impacts on agricultural resources take into account the proposed project's temporary impacts as well as those likely to occur as a result of other existing, proposed, and reasonably foreseeable projects. To determine cumulative impacts on agricultural resources, an assessment is made of the temporal nature of the impacts on individual resources (e.g., temporary such as in solar projects versus permanent as in industrial or residential developments) as well as the inventory of agricultural resources within the cumulative setting.

As discussed in Section 3.3, Agricultural Resources, the majority of the project site is designated as Farmland of Statewide Importance, with a pocket of Prime Farmland and Farmland of Local Importance[1] located in the southern portion of the project site. Approximately 1 acre of Unique Farmland occurs along the western boundary of the project site. Therefore, the proposed project would

[1] It should be noted that analysis of Other Land and Farmland of Local Importance is not required under CEQA significance criteria, as these designations are not considered an "agricultural land" per CEQA Statute Section 21060.1(a).

convert land designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to non-agricultural uses, and, as such, incrementally add to the conversion of agricultural land in Imperial County. However, the project site is located on land designated for agricultural uses. The project would be constructed on land currently zoned A-2-G (General Agricultural with a Geothermal Overlay). Pursuant to Title 9, Division 5, Chapter 8, the following uses are permitted in the A-2 zone subject to approval of a CUP from Imperial County: solar energy electrical generator, battery storage facility, electrical substations, communication towers, and facilities for the transmission of electrical energy. Upon approval of a CUP and Zone Change into the RE Overlay Zone designation, the project's uses would be consistent with the Imperial County Land Use Ordinance and thus is also consistent with the General Plan land use designation of the site. Additionally, as a condition of project approval, the project applicant or its successor in interest will be responsible for implementing a reclamation plan when the project is decommissioned at the end of its lifespan.

As discussed in Section 3.3, Agricultural Resources, Mitigation Measure AG-1a (Payment of Agricultural and Other Benefit Fees), AG-1b (Site Reclamation Plan), and AG-2 (Pest Management Plan) would be implemented to reduce potential impacts on agricultural resources to a level less than significant. Each individual cumulative project would be or would have been required to provide mitigation for any impacts on agricultural resources in accordance with the County's policies directed at mitigating the impact associated with the conversion of important farmlands. Therefore, the project's contribution to this impact would be less than cumulatively considerable.

5.3.3 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.

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 (Midway Solar Farm I, Orni Wister Solar, Calipatria Solar Farm [Wilkinson Solar], Laurel I, Laurel II, and Laurel III), or pending entitlement (Nider Solar Project, Vega SES 2, 3, and 5, and Viking Solar) 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. However, as discussed in Section 3.4, 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 (Midway Solar Farm I, Orni Wister Solar, Calipatria Solar Farm [Wilkinson Solar], Laurel I, Laurel II, Laurel III, Nider Solar Project, Vega SES 2, 3, and 5, and Viking 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 and $PM_{2.5}$ for the NAAQS. However, 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.

5.3.4 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 3.5, Biological Resources, one plant species, Abram’s spurge, has a low potential to occur due to the limited suitable habitat within the project site. Three wildlife species have a low potential to occur (flat-tailed horned lizard, short-eared owl, and western yellow bat) on the project site, two wildlife species have a high potential to occur (BUOW and mountain plover) on the project site, and one wildlife species (loggerhead shrikes) was observed onsite during site reconnaissance. As such, the project has the potential to result in direct impacts on biological resources. Additionally, project construction has the potential to result in direct and indirect impacts on nesting birds.

Mitigation measures identified in Section 3.5, Biological Resources, would ensure that all regulations required to protect these species are implemented, thereby minimizing potential impacts on these species to a less than significant level. 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. Several jurisdictional features were observed within the project site. The New River, a NWI mapped blueline, flows approximately .2 miles to the west of the project site. In addition, several NWI mapped blueline canals, drains, and ditches owned by IID flow along the borders of the project site. However, the project has been located, and consequently designed, to avoid impacts to waters of the State and waters of the U.S.

Given the above, the project 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.

5.3.5 Cultural Resources

As discussed in Section 3.6, Cultural Resources, 6 newly recorded cultural resources were identified within the project site during field surveys. Newly identified cultural resources comprise both historic-period and two multi-component sites. Resource 21267-001 is recommended not eligible for listing and the other five resources have not been formally evaluated for potential eligibility for listing in the CRHR. The project applicant will avoid ground-disturbing activities within and in close proximity to these resources. However, if-ground disturbing activities must occur within and in close proximity to these resources, a significant impact may potentially occur. Implementation of Mitigation Measures CUL-1 through CUL-6 would reduce potential impacts associated to cultural historic resources to a level less than significant. 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 CUL-1 through CUL-6 would reduce potential impacts associated with the unanticipated discovery of unknown buried archaeological resources. Implementation of Mitigation Measure CUL-7 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 CUL-1 through CUL-7 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 archaeological resources would be anticipated because the soil disturbance would have already occurred and been mitigated during construction.

5.3.6 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 Measures GEO-2 through GEO-7 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 Measures GEO-2 through GEO-7, the proposed project would have a less than cumulatively considerable contribution to impacts on paleontological resources.

5.3.7 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.

CAPCOA considers projects that generate more than 900 metric tons of CO_2e per year to be significant. This 900 metric tons per year threshold was developed to ensure at least 90 percent of new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to the statewide GHG emissions reduction goals that had been established for the year 2030 under SB 32. Thus, both cumulatively and individually, projects that generate less than 900 metric tons CO_2e per year have a negligible contribution to overall emissions. As discussed in Section 3.8, Greenhouse Gas Emissions, the project would result in the generation of approximately 46 $MTCO_2e$ annualized over the lifetime of the project. Therefore, the construction emissions are less than the CAPCOA's screening threshold of 900 $MTCO_2e$ per year. As the project's emissions do not exceed the CAPCOA'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 are 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.

5.3.8 Hazards and Hazardous Materials

The geographic scope considered for cumulative impacts from health, safety, and hazardous materials is the area within 1 mile of the boundary of the project sites. One mile is the standard American Society of Testing and Materials (ASTM) standard search distance for hazardous materials.

Under cumulative conditions, implementation of the project in conjunction with the projects listed in Table 5-1 is not anticipated to present a public health and safety hazard to residents. Additionally, the project and related projects would all involve the storage, use, disposal, and transport of hazardous materials to varying degrees during construction, operation, and decommissioning. Impacts from these activities are less than significant for the project because the storage, use, disposal, and transport of hazardous materials are extensively regulated by various Federal, state, and local laws, regulations, and policies. It is foreseeable that the project and related projects would implement and comply with these existing hazardous materials laws, regulations, and policies. Therefore, the related projects would not cause a cumulative impact, and the project would not result in a cumulatively considerable incremental contribution to a cumulative impact related to use or routine transport of hazardous materials.

5.3.9 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, as outlined in Mitigation Measures HYD-1 and HYD-2. 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 project site is 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.

5.3.10 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 3.11, 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 3.11, 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 Zone Change) 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.

5.3.11 Public Services

The project would result in increased demand for public services (fire protection service and law enforcement services) (Section 3.12, Public Services). Future development in the Imperial Valley, including projects identified in Table 5-1, would also increase the demand for public services. In terms of cumulative impacts, the appropriate service providers are responsible for ensuring adequate provision of public services within their jurisdictional boundaries. In conjunction with the project's approval, the project applicant would also be conditioned to ensure sufficient funding is available for any fire protection or prevention needs and law enforcement services. Based on the type of projects

proposed (e.g., solar energy generation), their relatively low demand for public services other than fire and police, it is reasonable to conclude that the project would not increase demands for education, or other public services. Service impacts associated with the project related to fire and police would be addressed through payment of impact fees as part of the project's Conditions of Approval to ensure that the service capabilities of these departments are maintained. Therefore, no cumulatively considerable impacts would occur.

5.3.12 Transportation

As stated in Section 3.13, Transportation, during the construction phase of the project, the maximum number of trips generated on a daily basis would be approximately 540 trips. Based on the low amount of construction trips generated and low existing traffic volumes on area roadways, no substantial transportation impacts are anticipated. 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 (Midway Solar Farm I, Ormat Wister Solar, Calipatria Solar Farm [Wilkinson Solar], Laurel I, Laurel II, and Laurel III), or pending entitlement (Nider Solar Project, Vega SES 2, 3, and 5, and Viking Solar). 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.

5.3.13 Tribal Cultural Resources

As discussed in Section 3.14, Tribal 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.

5.3.14 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.

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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 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 specifically related to 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)). Therefore, implementation of the proposed project would not impact forestry resources.

6.2 Energy

Information for this section is summarized from the *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis* prepared for the project by Vista Environmental. This report is included in Appendix C of this EIR.

The proposed project would impact energy resources during construction and operation. Energy resources that would be potentially impacted include electricity, and petroleum-based fuel supplies and distribution systems. The proposed project would not utilize any natural gas during either construction or operation of the proposed project, and no further analysis of natural gas is provided in this analysis.

The following discussion calculates the potential energy consumption associated with the construction and operation of the proposed project and analyzes if any energy utilized by the proposed project is wasteful, inefficient, or unnecessary consumption of energy resources.

6.2.1 Construction Energy

The construction activities for the proposed project are anticipated to include: 1) Site Preparation; 2) PV System Installation and Testing, and 3) Site Clean-up and Restoration. The proposed project would consume energy resources during construction in three (3) general forms:

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, as well as delivery and haul truck trips (e.g., hauling of construction waste material to off-site reuse and disposal facilities);
2. Electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary

lighting during construction, electronic equipment, or other construction activities necessitating electrical power; and,

3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction-Related Electricity

During construction of the proposed project, electricity would be consumed to construct the new structures and infrastructure. Electricity would be supplied to the project site by IID and would be obtained from the existing electrical lines in the vicinity of the project site. The use of electricity from existing power lines rather than temporary diesel or gasoline powered generators would minimize impacts on energy use. Electricity consumed during project construction would vary throughout the construction period based on the construction activities being performed. Various construction activities include electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power. Such electricity demand would be temporary, nominal, and would cease upon the completion of construction. Overall, construction activities associated with the proposed project would require limited electricity consumption that would not be expected to have an adverse impact on available electricity supplies and infrastructure. Therefore, the use of electricity during project construction would not be wasteful, inefficient, or unnecessary.

The proposed project would include installation of an approximately 1.8-mile-long overhead power line from the southern edge of the project site to the North Brawley Geothermal Power Plant substation, which would provide adequate capacity to handle the power generated and utilized by the proposed project. Where feasible, the new service installations and connections would be scheduled and implemented in a manner that would not result in electrical service interruptions to other properties. Compliance with County and IID guidelines and requirements would ensure that the proposed project fulfills its responsibilities relative to infrastructure installation, coordinates any electrical infrastructure removals or relocations, and limits any impacts associated with construction of the project. Construction of the project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

Construction-Related Petroleum Fuel Use

Petroleum-based fuel usage represents the highest amount of transportation energy potentially consumed during construction, which would be utilized by both off-road equipment operating on the project site and on-road automobiles transporting workers to and from the project site and on-road trucks transporting equipment and supplies to the project site.

The off-road equipment utilized during construction of the proposed project would consume 84,890 gallons of fuel. The on-road trips generated from construction of the proposed project would consume 77,046 gallons of fuel. As such, the combined fuel used from off-road construction equipment and on-road construction trips for the proposed project would result in the consumption of 161,935 gallons of petroleum fuel. This equates to 0.17 percent of the gasoline and diesel consumed annually in Imperial County. As such, the construction-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates.

Construction activities associated with the proposed project would be required to adhere to all State and ICAPCD regulations for off-road equipment and on-road trucks, which provide minimum fuel

efficiency standards. As such, construction activities for the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Impacts regarding transportation energy would be less than significant.

6.2.2 Operations Energy

The on-going operation of the proposed project would require the use of energy resources for multiple purposes including, but not limited to, heating/ventilating/air conditioning (HVAC), lighting, and electronics. Energy would also be consumed during operations related to water usage and vehicle trips.

Operations-Related Electricity

Operation of the proposed project would result in consumption and production of electricity at the project site. The proposed PV solar panels will generate 97,333,333 kWh per year of electricity and operation of the project will use 1,946,667 kWh per year of electricity, which would result in the net generation of 95,386,667 kWh per year of electricity. This equates to 2.8 percent of the electricity consumed annually by IID. As such, the operations-related electricity use would provide a significant renewable resource for the IID and would help IID achieve the State' Renewable Portfolio Standards requirement for non-carbon sources of electricity. No impact would occur from electricity-related energy consumption from the proposed project.

Operations-Related Vehicular Petroleum Fuel Usage

Operation of the proposed project would result in increased consumption of petroleum-based fuels related to vehicular travel to and from the project site. The proposed project would consume 1,036 gallons of petroleum fuel per year from vehicle travel. This equates to 0.001 percent of the gasoline and diesel consumed in Imperial County annually. As such, the operations-related petroleum use would be nominal, when compared to current petroleum usage rates

It should be noted that, the proposed project would comply with all Federal, State, and County requirements related to the consumption of transportation energy and would provide a non-carbon source of electricity to power electric vehicles in Imperial County. Thus, impacts with regard transportation energy supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

6.2.3 Compliance with State or Local Plans for Renewable Energy or Energy Efficiency

The purpose of the proposed project is the construction of a renewable energy and storage facility in Imperial County. Once in operation, it will decrease the need for energy from fossil fuel–based power plants in the state. The result would be a net increase in electricity resources available to the regional grid, generated from a renewable source. The proposed project would help California meet its Renewable Portfolio Standard of 60 percent of retail electricity sales from renewable sources by the end of 2030 and 100 percent by 2045. Additionally, the project would also be consistent with the County's General Plan Conservation and Open Space Element, Objective 9.2 which encourages renewable energy developments. Therefore, the project would directly support state and local plans for renewable energy development. The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, no impact would occur.

6.3 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 are two plugged and abandoned geothermal wells (Well No. 02590966 and 02590983) located in the central portion of the project site (APN 037-140-022) (California Department of Oil, Gas, and Geothermal Resources 2021). There is also one idle water well (Well No. 02591498) on the southwestern portion of the project site (APN 037-140-022). The proposed project would be designed to avoid the geothermal wells and water well and would result in no impact.

6.4 Noise

Information contained in this section is summarized from the *Noise Impact Analysis for the Brawley Solar Energy Facility Project* prepared by Vista Environmental. This report is included in Appendix I of this EIR. The following analyzes the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the County standards. Potential noise impacts from vibration and nearby airports is also analyzed below.

6.4.1 Construction-Related Noise

The construction activities for the proposed project are anticipated to include: 1) Site Preparation; 2) PV System Installation and Testing, and 3) Site Clean-up and Restoration. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the project site are single-family homes located as near as 40 feet to the north side of the project site (near the northwest corner of the project site). There are also homes located on the east side of N Best Avenue that are as near as 120 feet east of the project site.

The General Plan Noise Element includes Construction Noise Standards that limits the noise created from construction equipment to 75 dB Leq, averaged over an eight (8) hour period at the nearest sensitive receptor. In addition, the Construction Noise Standards limit construction equipment operation to between the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays.

For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. Since the County's construction noise standard is based on the noise level over an 8-hour period and in a typical day the proposed construction equipment would operate over the entire project site, the use of the methodology detailed in the FTA Manual for a General Assessment would provide a reasonable estimate of the construction-related noise levels created by the proposed project.

Table 6-1 shows that greatest construction noise impacts would be as high as 53 dBA Leq during the PV system installation and testing phase at the nearest homes to the northwest, northeast, and southeast of the project site. All calculated construction noise levels shown in Table 6-1 are within the County's construction noise standard of 75 dBA and would also be below the existing ambient daytime noise levels in the vicinity of the nearby homes. Therefore, through adherence to the limitation of allowable construction times provided in the General Plan Noise Element, construction-related noise levels would not exceed any standards established in the General Plan or Noise Ordinance nor would construction activities create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

Table 6-1.Construction Noise Levels at the Nearby Homes

Construction Phase	Construction Noise Level (dBA Leq) at:		
	Home to Northwest[1]	Home to Northeast[2]	Home to Southeast[3]
Site Preparation	52	52	52
PV System Installation and Testing	53	53	53
Site Clean-Up and Restoration	52	52	52
Construction Noise Threshold[4]	**75**	**75**	**75**
Ambient Daytime Noise Level	66.5	60.2	62.0
Exceed Thresholds?	**No**	**No**	**No**

[1] The distance from the center of the project site to the home to the northwest was measured at 2,900 feet.
[2] The distance from the center of the project site to the homes to the northeast was measured at 2,900 feet.
[3] The distance from the center of the project site to the home to the southeast was measured at 2,850 feet.
[4] Construction Noise Threshold obtained from the General Plan Noise Element (County of Imperial, 2015).
Source: Appendix I of this EIR

6.4.2 Operational-Related Noise

The proposed project would consist of the development of a solar facility with a BESS and a substation. Since the proposed project would be operated on an unstaffed basis and monitored remotely from the Brawley Geothermal Power Plant control room, operation of the proposed project would not typically generate any additional vehicle traffic on the nearby roadways. As such, potential noise impacts associated with the operations of the proposed project would be limited to onsite noise sources. The proposed PV solar panels do not create any operational noise, however the proposed BESS Enclosures (AC Unit noise), Power Conversion System, Power Distribution Center that would be located at the BESS, and auxiliary transformers, and Battery Step Up Transformer that would be located at the proposed substation are known sources of noise that have been analyzed below.

Both the General Plan Noise Element and Section 90702.00 provide the same noise level limits at the property line of the nearby homes of 50 dBA Leq-1hour between 7 a.m. and 10 p.m. and 45 dBA Leq-1hour between 10 p.m. and 7 a.m. When the ambient noise level is equal to or exceeds the above noise standards, the proposed noise source shall not exceed the ambient plus 3 dB Leq.

In order to determine the noise impacts from the operation of onsite noise making equipment, noise specifications from previously prepared noise reports were obtained and are shown in Table 6-2. The noise levels from each source were calculated through use of standard geometric spreading of noise from a point source with a drop-off rate of 6 dB for each doubling of the distance between the source and receiver (Appendix I of this EIR).

Table 6-2 shows that the proposed project's onsite operational noise from the anticipated onsite noise sources would not exceed the applicable noise standards at the nearby homes. Therefore, operational onsite noise impacts would be less than significant.

Table 6-2. Operational Noise Levels at the Nearby Homes

Noise Source	Home to Northwest		Home to Northeast		Home to Southeast	
	Distance - Source to Home (feet)	Noise Level[1] (dBA Leq)	Distance - Source to Home (feet)	Noise Level[1] (dBA Leq)	Distance - Source to Home (feet)	Noise Level[1] (dBA Leq)
BESS Enclosures[2]	5,050	25	5,100	25	850	40
Power Conversion System[3]	5,050	22	5,100	22	850	38
Power Distribution Center[4]	5,050	22	5,100	22	850	38
Auxiliary Transformers[5]	5,030	31	5,280	31	1,150	44
Battery Step up Transformer[6]	5,030	31	5,280	31	850	47
Combined Noise Levels		**35**		**35**		**50**
County Noise Standard[7] (day/night)		**69.5/67.9**		**63.2/58.6**		**65.0/59.2**
Exceed County Noise Standards?		**No/No**		**No/No**		**No/No**

Notes:
[1] The noise levels were calculated through use of standard geometric spreading of noise from a point source with a drop-off rate of 6 dB for each doubling of the distance between the source and receiver.
[2] BESS Enclosures is based on a reference noise measurement of 88.6 dBA at 1 meter.
[3] Power Conversion System is based on a reference noise measurement of 86.1 dBA at 1 meter.
[4] Power Distribution Center is based on a reference noise measurement of 86.1 dBA at 1 meter.
[5] Auxiliary Transformers are based on a reference noise measurement of 95.1 dBA at 1 meter.
[6] Battery Step up Transformer is based on a reference noise measurement of 95.1 dBA at 1 meter.
[7] County Noise Standard based on ambient noise level shown in Table D plus 3 dB at the nearby homes.
Source: Appendix I of this EIR

6.4.3 Construction-Related Vibration Impacts

Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptor to the project site is a single-family home located as near as 40 feet to the north side of the project site (near the northwest corner of the project site).

Since neither the Municipal Code nor the General Plan provides any thresholds related to vibration, Caltrans guidance has been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. A large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest home (40 feet away) would be 0.06 inch per second PPV (Appendix I of this EIR). The vibration level at the nearest home, would be below the 0.25 inch per second PPV threshold detailed above. Impacts would be less than significant.

6.4.4 Operations-Related Vibration Impacts

The proposed project would consist of the operation of a solar energy facility. The on-going operation of the proposed project would not include the operation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from the operation of the proposed project.

6.4.5 Airport Noise

The project site is located within 2 miles of a public airport. The nearest airport is the Brawley Municipal Airport located approximately 1.5 miles south of the project site. However, the project site is outside of the airport compatibility zones of the Brawley Municipal Airport (County of Imperial 1996). Therefore, the proposed project would not expose people residing or working in the project area to excess noise levels and no impact is identified for this issue area.

6.5 Population and Housing

Development of housing is not proposed as part of the project. The unemployment rate in Imperial County, as of August 2021 was 19.4 percent (State of California Employment Development Department 2021b). 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 in Imperial County (19.4 percent) (State of California Employment Development Department 2021b), and the availability of the local workforce, construction of the proposed project would not have a growth-inducing effect.

Once fully constructed, the 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 approximately two employees would only be onsite up to four times per year to wash the solar panels. As the project's PV arrays produce electricity passively, maintenance requirements are anticipated to be very minimal. 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.

6.6 Public Services

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.

6.7 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. Up to 120 construction workers are expected to be on-site per day. 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.

6.8 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, 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. 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 Imperial Landfill (13-AA-0019) located approximately 11 miles south of the proposed project in Imperial. The Imperial Landfill has approximately 12,384,000 cubic yards of remaining capacity and is estimated to remain in operation

through 2040 (CalRecycle 2021). Therefore, there is ample landfill capacity in the County to receive the minor amount of solid waste generated by construction and operation of the proposed 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.

6.9 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, the proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan; expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; exacerbate fire risk; or, 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 wildfire.

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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 Brawley 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 south of the project site on privately-owned agricultural lands, similar to the project site. The site, located on APNs 037-160-017, 037-160-018, and 037-160-019 totals approximately 282 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 immediately north of State Route 78, a major US State Highway traversed by large numbers of transient public viewers. When compared to the proposed project, the alternative site would result in potentially significant impacts associated with aesthetics and visual quality. While the proposed project identified no significant impacts for aesthetics and visual quality, implementation of the project at the alternative location site has the potential to permanently alter the existing visual character and visual quality of the alternative site, which is characterized by agricultural lands and minor agricultural development under existing viewer locations from SR 78, looking north. As such, aesthetic impacts at the alternative location site, adjacent to SR 78, would be greater than those at the proposed project site, which is located adjacent to small, less-traveled, agricultural roads (N Best Road and Baughman Road), approximately 0.7 mile east of the major thoroughfare, SR 111.

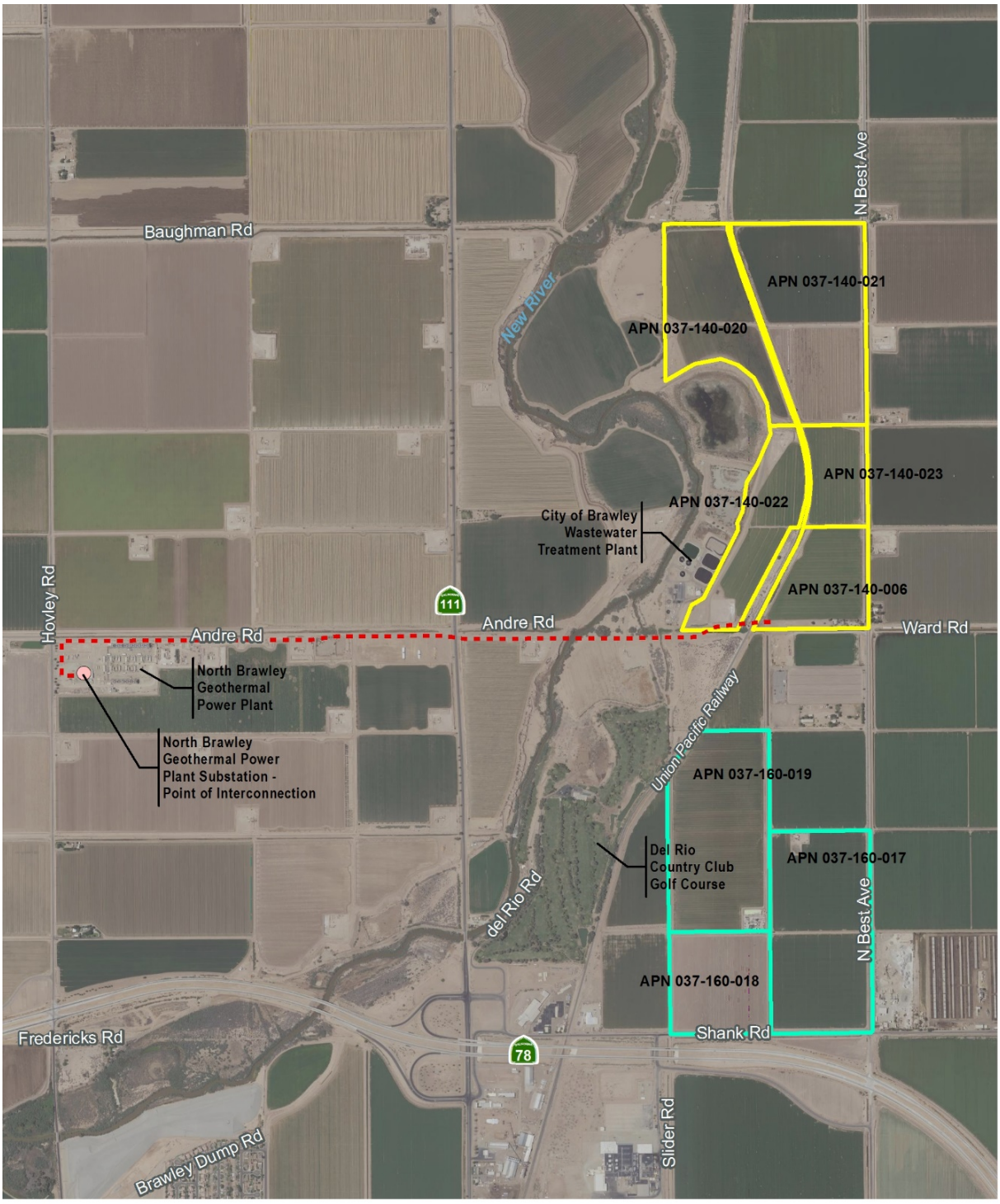
  Similarly, a glare hazard analysis prepared for the project (Appendix B of this EIR) concluded that sensitive viewers near the proposed project, including residences, a nearby golf course,

major roadways, and approach slopes associated with the Brawley Municipal Airport, would not experience glare effects from the project. Comparatively, due to the alternative site location's close proximity immediately north of SR 78, potential glare impacts resulting from the solar array would be potentially significant to viewers traveling on SR 78.

- The alternative location site, as compared to the proposed project site, is bisected by the Shellenberger Drain. With the implementation of mitigation, impacts on surface water quality as attributable to the proposed project, which has been designed to avoid bisecting any waterways, would be reduced to a less than significant level. However, construction activities at the alternative site location have the potential to impact hydrology and water quality (due to the presence of the Shellenberger Drain) when 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 (to hydrology and water quality) 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



7.4 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

Under the No Project/No Development Alternative, the project site would not be developed and would continue to be agricultural 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, 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.

Agricultural Resources

Under the No Project/No Development Alternative, the project site would not be developed and would continue to be agricultural land. Compared to the proposed project, implementation of this alternative would avoid the conversion of land designated as Prime Farmland (4.44 acres) and Farmland of Statewide Importance (204.95 acres) per the Farmland Mapping and Monitoring Program (FMMP). Therefore, this alternative would not contribute to the conversion of agricultural lands or otherwise adversely affect agricultural operations. Compared to the proposed project, this alternative would avoid the need for future restoration of the project site to pre-project conditions. This alternative would avoid any agricultural impacts associated with the proposed project.

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 3.4, 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 and other migratory birds, 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.

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 potential seismic hazards, 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 SB 32. 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 generate 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 30 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.

Hazards and Hazardous Materials

The No Project/No Development Alternative would not include any new construction. Therefore, no potential exposure to hazardous materials would occur. Therefore, no impact is identified for this alternative for hazards and hazardous materials. As with the proposed project, this alternative would not result in safety hazards associated with airport operations. Compared to the proposed project, this alternative would have less of an impact related to hazards and hazardous materials.

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. Like 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. 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 3.11, 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 agricultural land. Current land uses would remain the same. No General Plan Amendment, Zone Change, or CUP 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.

Public Services

The No Project/No Development Alternative would not increase the need for public services which would otherwise be required for the proposed project (additional police or fire protection services). Therefore, no impact to public services is identified for this alternative. The proposed project will result in less than significant impacts; subject to payment of law enforcement and fire service fees. Compared to the proposed project, this alternative would have fewer impacts related to public services as no new development would occur on the project site.

Transportation

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, 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.

Tribal Cultural Resources

As discussed in Section 3.6, 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.

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 SB 32.

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

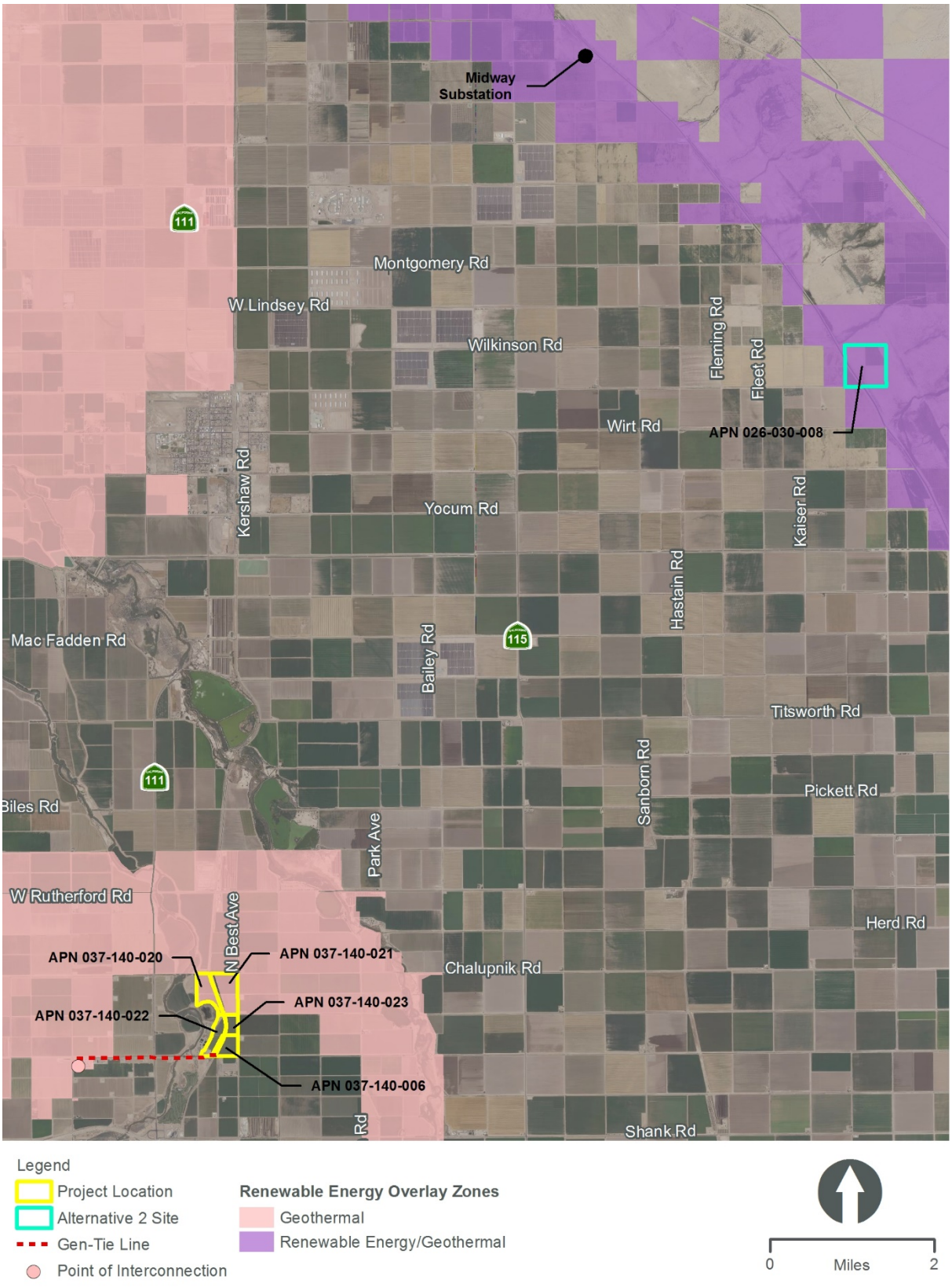
lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR."

Given that the proposed project is not located within the County's RE Overlay Zone, the purpose of this alternative is to develop a project alternative 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 7-2, the Alternative 2 project site is located entirely within the RE Overlay Zone. Alternative 2 would involve the construction and operation of a 40 MW solar energy facility and associated infrastructure on an approximately 231-acre parcel (APN 026-030-008) located approximately 11 miles northeast of Brawley in unincorporated Imperial County. The Alternative 2 project site is designated as Agriculture under the County's General Plan and zoned S-2-RE and A-3-RE (Open Space/Preservation and Heavy Agriculture, both within the RE Overlay Zone).

Similar to the proposed project, Alternative 2 would require approval of a CUP to allow for the construction and operation of a solar project. However, compared to the proposed project, the Alternative 2 project site is located within the RE Overlay Zone and, as such, would not require a General Plan Amendment or Zone Change to include/classify the project site into the RE Overlay Zone. Additionally, while the proposed project (A-2-G Zone) would not require a Variance, the S-2-RE Zone associated with the Alternative 2 site allows a maximum height limit of 40 feet for non-residential structures and 100 feet for communication towers. As such, a Variance would be required under this alternative because the proposed height of the transmission towers (66 feet) and microwave tower (maximum of 100 feet) would exceed 40 feet. This alternative's gen-tie line could potentially interconnect to IID's existing Midway Substation located approximately 4.75 miles northwest of the solar facility. Consultation and coordination with IID would be required to determine if the Midway Substation has existing capacity or would require upgrades for this alternative's interconnection.

Figure 7-2. 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

Compared to the proposed project site, the Alternative 2 project site is comprised of both agricultural and open space lands. Similar to the proposed project, Alternative 2 would alter the existing visual character of the project site by changing the existing land use at the project site from undeveloped open space and/or agricultural to a solar facility. However, the Alternative 2 project site is located approximately 11 miles northeast of Brawley in a relatively remote location. As such, potential impacts to aesthetics would be reduced under Alternative 2 when compared to the proposed project due to the lack of public viewer locations.

Agricultural Resources

The Alternative 2 site is designated Farmland of Statewide Importance by the FMMP. Compared to the proposed project, Alternative 2 does not contain Prime Farmland and would avoid the impact to approximately 4.44 acres of Prime Farmland. However, this alternative would still result in the temporary conversion of Farmland of Statewide Importance (approximately 231 acres). Therefore, mitigation would still be required for this alternative to reduce significant farmland impacts to a less than significant level. Compared to the proposed project, development of the Alternative 2 site would have less impacts on agricultural resources because it would avoid the temporary conversion of Prime Farmland to non-agricultural uses.

Air Quality

Similar to the proposed project, a 40 MW solar energy facility would be constructed on approximately 231 acres of land. Based on this consideration, this alternative would generate air emissions similar to the proposed project. As discussed in Section 3.4, 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

Similar to the proposed project, the Alternative 2 site is located on agricultural fields, which provide habitat for burrowing owl. Irrigation canals and drains are commonly used as burrowing nesting sites in the Imperial Valley. This alternative would also require the construction of supporting infrastructure that has the potential to result in biological impacts. Compared to the proposed project, this alternative would result in similar biology impacts.

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 resources impacts. Compared to the proposed project, which is located on active agricultural land that

has been previously disturbed, the Alternative 2 site is predominantly located on open space land. As such, although this alternative would attempt to avoid cultural resources to the extent feasible, depending on the route of the proposed gen-tie line, Alternative 2 could result in greater impacts to previously undiscovered 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, Alternative 2 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. Alternative 2 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.

Hazards and Hazardous Materials

Depending on the specific locations and conditions of the Alternative 2 project site that would need to be developed, certain hazards and hazardous materials may be encountered. The Alternative 2 project site may need to be remediated before implementation of the alternative. Overall, the degree of impact associated with hazards and hazardous materials would likely be similar to the proposed project.

Hydrology/Water Quality

With implementation of the proposed mitigation measures, potential hydrology/water quality impacts under the proposed project would be less than significant. Comparatively, the Alternative 2 site is bisected by the Mammoth Wash and the gen-tie alignment is longer, and, as such, construction activities have the potential to impact hydrology and water quality to a greater extent than would occur under 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

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. Similar to the proposed project, Alternative 2 will require approval of a CUP to allow for the construction and operation of a solar project. Additionally, while the proposed project (A-2-G Zone) would not require a Variance, the S-2-RE Zone associated with the Alternative 2 site allows a maximum height limit of 40 feet for non-residential structures and 100 feet for communication towers. As such, a Variance would be required under this alternative because the proposed height of the transmission towers (70 feet) and microwave tower (maximum of 100 feet) would exceed 40 feet. With approval of the CUP and

Variance, the alternative would not conflict with the County's zoning ordinance. Therefore, land use and planning impacts are anticipated to be similar to the proposed project.

Public Services

Alternative 2 would require increased public services, specifically law enforcement and fire protection services. While the solar facility footprint would be slightly smaller (reduced by approximately 4 acres), the impacts of this alternative to public services and associated service ratios would be similar. Like the proposed project, this alternative would be conditioned to provide law enforcement and fire service development impact fees. Therefore, this alternative would result in a similar impact related to public services as the proposed project.

Transportation

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, Alternative 2 would not impact any applicable plan, ordinance, or policy addressing the performance of the circulation system, 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 as the proposed project.

Tribal 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 tribal cultural resources impacts. Although this alternative would attempt to avoid impacts on tribal cultural resources to the extent feasible, depending on the route of the proposed gen-tie line, Alternative 2 could result in greater impacts to tribal cultural resources.

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 aesthetics and agricultural resources 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: cultural resources, hydrology and water quality, 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: cultural resources, hydrology and water quality, and tribal cultural resources. Further, the project applicant does not own, or otherwise control this property.

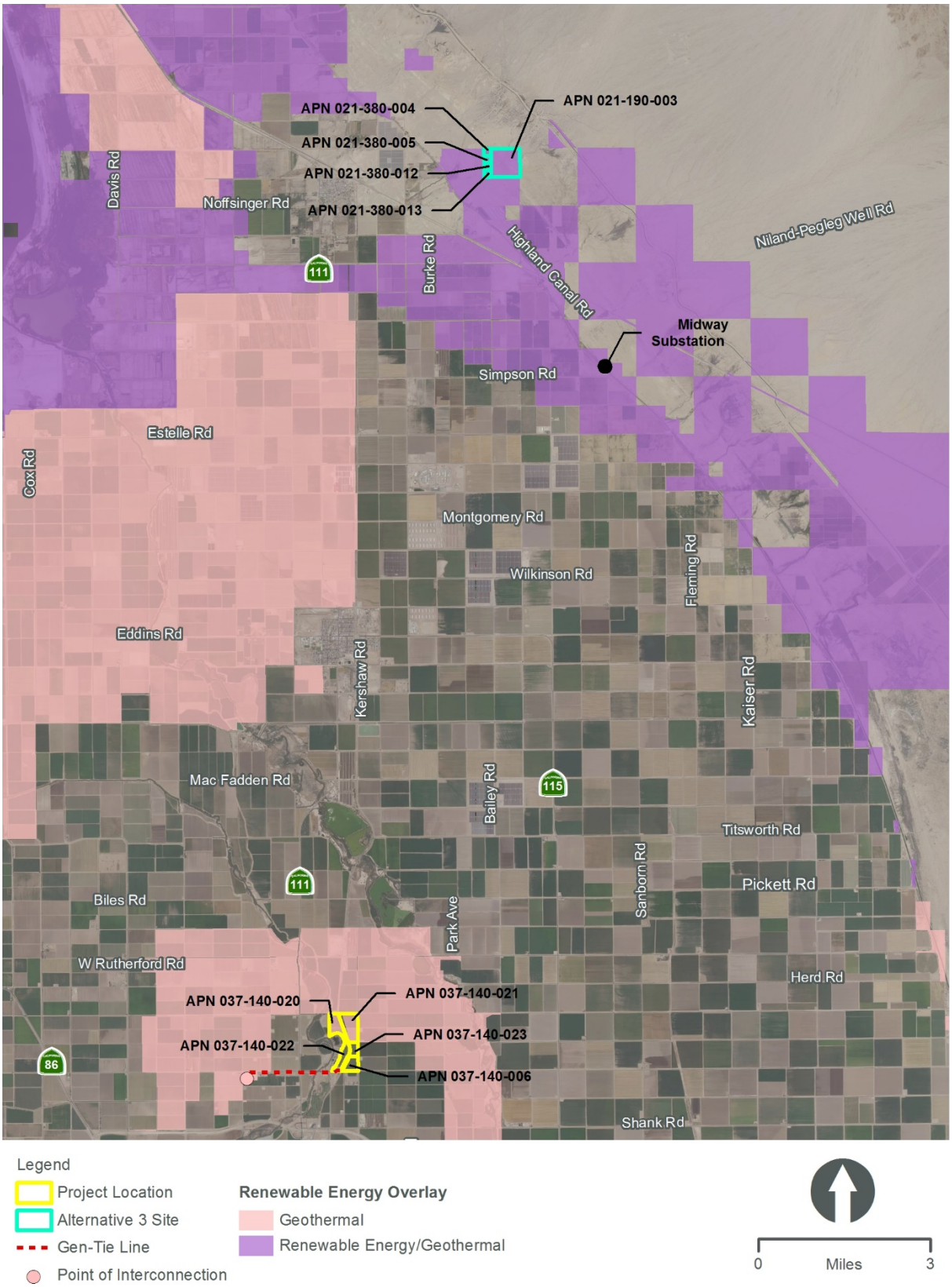
7.6 Alternative 3: Development within Renewable Energy Overlay Zone – Desert Lands

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 7-3, the Alternative 3 project site is located entirely within the RE Overlay Zone. Alternative 3 would involve the construction and operation of a solar energy facility and associated infrastructure on five parcels totaling approximately 288 acres (APN 021-190-003; 021-380-004; 021-380-005; 021-380-012; and 021-380-013) located approximately 0.5 mile south of Slab City. This alternative is 61 acres larger than the proposed project site. Therefore, more solar panels could be installed on this site compared to the proposed project. 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. Similar to the proposed project site, 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 (66 feet) would not exceed 120 feet. This alternative's gen-tie line could potentially interconnect to IID's existing Midway Substation located approximately 4 miles southeast of the solar facility. Consultation and coordination with IID would be required to determine if the Midway Substation has existing capacity or would require upgrades for this alternative's interconnection.

Figure 7-3. 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

While the proposed project site is located on active agricultural land, 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 readily visible to more people under Alternative 3 when compared to the proposed project. Compared to the proposed project, this alternative could result in greater aesthetics impacts.

Agricultural Resources

The Alternative 3 site is designated Other Land by the FMMP. Compared to the proposed project, implementation of this alternative would avoid the conversion of land designated as Prime Farmland (4.44 acres) and Farmland of Statewide Importance (204.95 acres). Therefore, this alternative would not contribute to the conversion of agricultural lands or otherwise adversely affect agricultural operations. This alternative would avoid any agricultural impacts associated with the proposed project.

Air Quality

This alternative is 61 acres larger than the proposed project site. Therefore, more solar panels could be installed on this site compared to the proposed project. Based on this consideration, this alternative would generate slightly increased air emissions compared to the proposed project. This alternative would result in greater air quality emissions compared to the proposed project.

Biological Resources

As discussed in Section 3.5, project implementation has the potential to impact special-status species, including burrowing owl. Compared to the proposed project, which is located within an active agricultural area, the Alternative 3 site is located on relatively undisturbed desert lands. The overall number of burrowing owl locations potentially impacted would be less because their potential to occur on the Alternative 3 site is lower than the proposed project site. Compared to the proposed project, development of this site would have less impacts on burrowing owl. However, this alternative has the potential to impact other sensitive plant and animal 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. While the proposed project has been designed to avoid jurisdictional waters, Alternative 3 would require consultation with USACE and CDFW to avoid or minimize impacts upon federally and state jurisdictional drainage features. This alternative would result in greater impacts related to potential jurisdictional waters when compared to 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

resources impacts. While Alternative 3 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 Alternative 3 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 resources because, while the proposed project site is located on active agricultural land, Alternative 3 is located on relatively undisturbed desert lands.

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 is 61 acres larger than the proposed project site. Therefore, more solar panels could be installed on this site compared to the proposed project. This alternative would result in a slightly higher power production capacity compared to the proposed project; hence, the overall benefits of the project to global climate change through the creation of renewable energy would be slightly greater. This alternative would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Similar to the proposed project, this alternative would contribute desirable benefits to reductions in global climate change through the production of renewable energy.

Hazards and Hazardous Materials

Depending on the specific locations and conditions of the Alternative 3 project site that would need to be developed, certain hazards and hazardous materials may be encountered. The Alternative 3 project site may need to be remediated before implementation of the alternative. Overall, the degree of impact associated with hazards and hazardous materials would likely be similar to the proposed project.

Hydrology/Water Quality

A portion of the Alternative 3 site (Map Number 06025C0450C) 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

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. Similar to the proposed project, Alternative 3 will require approval of a CUP to allow for the construction and

operation of a solar project. Similar to the proposed project, no Variance would be required under this alternative because the proposed height of the transmission towers (66 feet) would not exceed the 120 feet height limit of non-residential structures in the A-2-RE Zone. With approval of the CUP, the alternative would not conflict with the County's zoning ordinance. Therefore, land use and planning impacts are anticipated to be similar to the proposed project.

Public Services

Alternative 3 would require increased public services, specifically law enforcement and fire protection services. While the overall project footprint would be bigger (increased by approximately 61 acres), the impacts of this alternative to public services and associated service ratios would be similar. Like the proposed project, this alternative would be conditioned to provide law enforcement and fire service development impact fees. Therefore, this alternative would result in a similar impact related to public services as the proposed project.

Transportation

This alternative is 61 acres larger than the proposed project site. Therefore, more solar panels could be installed on this site compared to the proposed project. This alternative would result in a slightly increased 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, 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.

Tribal 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 tribal cultural resources impacts. Although this alternative would attempt to avoid impacts on tribal cultural resources to the extent feasible, depending on the route of the proposed gen-tie line, Alternative 3 could result in greater impacts to tribal cultural resources.

Utilities and Service Systems

This alternative is 61 acres larger than the proposed project site. Therefore, more solar panels could be installed on this site compared to the proposed project. Construction and operation of this alternative would result in slightly increased water demand (for dust control) and solid waste generation. Compared to the proposed project, this alternative would have greater water demands and associated impacts related to utilities and service systems.

Conclusion

As shown on Table 7-1, this alternative would avoid impacts on agricultural resources 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, air quality, biological resources, cultural resources, hydrology/water quality, tribal cultural resources, and utilities and service systems.

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, air quality, biological resources, cultural resources, hydrology/water quality, tribal cultural resources, and utilities and service systems. 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 200 acres of total rooftop area) may be required to attain the proposed project's capacity of 40 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 18,320,000 square feet (approximately 420 acres) would be required to produce 40 MW.

[1] http://newsroom.edison.com/releases/california-regulators-approve-southern-california-edison-proposal-to-create-nations-largest-solar-panel-installation-program

7.7.1 Environmental Impact of Alternative 4: Distributed Commercial and Industrial Rooftop Solar Only Alternative

Aesthetics

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 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.

Agricultural Resources

Compared to the proposed project, this alternative would not include the conversion of Prime Farmland or Farmland of Statewide Importance for the solar generation facility. Therefore, this alternative would avoid the proposed project's impact to agricultural lands. Compared to the proposed project, this alternative would avoid the significant impacts associated with the agricultural issues.

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 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 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 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.

Hazards and Hazardous Materials

Hazards and hazardous materials-related impacts, including the potential for accidental discovery of undocumented hazardous materials during construction would be avoided. However, there are other hazards that could result from implementation of this alternative, depending on the specific locations and conditions of the various sites that would need to be developed. For example, electrical infrastructure would be placed on top of, or in closer proximity to habitable structures, such as office buildings. Electrical transmission systems would still be required in order to connect the various distributed energy systems to the electrical grid; therefore, there would be additional poles and other structures that could interfere with aviation, depending on their locations. Certain sites needed in order to implement this alternative may also contain hazardous materials that would need to be remediated before implementation of the alternative. Overall, the degree of impact associated with hazards and hazardous materials would likely be similar to the proposed project.

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). 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. With approval of planning approvals, land use and planning impacts resulting from this alternative would be similar to the proposed project.

Public Services

This alternative would require increased public services, specifically law enforcement and fire protection services. It is anticipated that public services and associated service ratios would, at a minimum, be similar to the proposed project as the facilities would require fire and law enforcement protection, and this alternative could result in a greater impact as the facilities would be distributed over a much larger geographical area. Similar to the proposed project, this alternative would be conditioned to provide law enforcement and fire service fees. This alternative would result in a similar impact related to public services.

Transportation

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, 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.

Tribal Cultural Resources

This alternative would require the construction of supporting infrastructure that would require ground disturbance and therefore, has the potential to result in tribal cultural resources impacts. Although this alternative would attempt to avoid impacts on tribal cultural resources to the extent feasible, depending on the location of supporting infrastructure, Alternative 4 could result in greater impacts to tribal cultural resources.

Utilities and Service Systems

As with the proposed project, this alternative would require water service and energy for the operation of the project. 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 avoid impacts on agricultural resources compared to the proposed project. It 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 would be the environmental superior alternative because it would reduce impacts for the following environmental issue areas as compared to the proposed project: aesthetics and agricultural resources. Alternative 2 would meet most of the basic objectives of the proposed project. However, the project applicant does not own, or otherwise control this property.

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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	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* Potentially Significant *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
Agricultural Resources	Less than Significant with Mitigation	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Avoid	*CEQA Significance:* Less than Significant with Mitigation *Comparison to Proposed Project:* Less Impact	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Avoid	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Avoid
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:* Potentially Significant *Comparison to Proposed Project:* Greater Impact	*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:* Similar Impact	*CEQA Significance:* Less than Significant with Mitigation *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
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
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
Hazards and Hazardous Materials	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

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
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:* Greater 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:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact	*CEQA Significance:* Less than Significant *Comparison to Proposed Project:* Similar Impact
Public Services	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
Transportation	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

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
Tribal Cultural Resources	Less than Significant	*CEQA Significance:* No Impact *Comparison to Proposed Project:* Similar 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
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:* Greater 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

David Black, Planner IV

HDR

Tim Gnibus, Principal

Sharyn Del Rosario, Project Manager

Elaine Lee, Environmental Planner

Terrileigh Pellarin, Environmental Planner

Jade Dean, Geographic Information Systems Analyst

Katie Turner, Document Production Administrator

HDR was assisted by the following consultants:

Chambers Group, Inc. (Visual Impact Assessment, Biological Technical Report, Archaeological and Paleontological Assessment Report)

9620 Chesapeake Drive, Suite 202

San Diego, CA 92123

Dubose Design Group (Water Supply Assessment)

1065 W State Street

El Centro, CA 92243

Linscott, Law & Greenspan, Engineers (Traffic Letter Report)

4542 Ruffner Street, Suite 100

San Diego, CA 92111

Petra Geotechnical, Inc. (Geotechnical Feasibility Study)

38655 Sky Canyon Drive, Suite A

Murrieta, CA 92563

Power Engineers, Inc. (Glare Analysis)

2041 South Cobalt Point Way

Meridian, ID 83642

Vista Environmental (Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis, Noise Impact Analysis)

1021 Didrickson Way

Laguna Beach, CA 92651

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	David Black	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: David Black at the address shown above. We will need the name for a contact person in your agency.

Project Title: Brawley Solar Energy Facility Project

Project Location: The project site is located on approximately 227 acres of privately-owned land (Assessor Parcel Nos. [APN] 037-140-006, -020, -021, -022, and -023) in the unincorporated area of Imperial County, CA. The site is approximately one mile north from the City of Brawley's jurisdictional limit. The project site is south of Baughman Road, west of Best Road, and north of Andre Road. The Union Pacific Railway transects the project site. The City of Brawley Wastewater Treatment Plant is located along the western edge of the project site.

The gen-tie line would originate from the southern edge of the project site and then head west along Andre Road to interconnect to the Imperial Irrigation District's (IID) existing North Brawley Geothermal Power Plant substation, located at Hovley Road and Andre Road. The gen-tie line route would be approximately 1.8 miles.

Project Description (brief)**:** The project applicant, ORNI 30, LLC, proposes to construct and operate a 40 megawatt (MW) photovoltaic (PV) solar facility with an integrated 40 MW battery energy storage system (BESS) (not to exceed 80 MW) on approximately 227 acres of privately-owned land. The proposed project would be comprised of bifacial solar PV arrays panels, an on-site substation, BESS, fiberoptic line or microwave tower, inverters, transformers, underground electrical cables and access roads. The proposed project would connect to the existing North Brawley Geothermal Power Plant substation located southwest of the project site via an approximately 1.8-mile long aboveground 92 kilovolt generation tie line.

The County Land Use Ordinance, Division 17, includes the Renewable Energy (RE) Overlay Zone, which authorizes the development and operation of renewable energy projects with an approved conditional use permit (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 in Figure 1, the northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site (APNs 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006) is located outside of the RE Overlay Zone.

Implementation of the project requires an amendment to the County's General Plan Renewable Energy and Transmission Element, Zone Change, and approval of a CUP, as described below:

- **General Plan Amendment:** The applicant is requesting a General Plan Amendment to include/classify all five project parcels (Assessor Parcel Nos. [APN] 037-140-006, -020, -021, -022, and -023) into the RE Overlay Zone. No change in the underlying General Plan land use (Agriculture) is proposed.
- **Zone Change:** The entire project site is currently zoned General Agricultural with a Geothermal Overlay (A-2-G). The applicant is requesting a Zone Change to include/classify all five project parcels into the Renewable Energy/Geothermal (REG) Overlay Zone (A-2-REG).
- **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 with an integrated BESS on land zoned General Agricultural with a REG Overlay Zone (A-2-REG).
- **Water Supply Assessment:** Implementation of the project would require the approval of the Water Supply Assessment.

Project Applicant: ORNI 30, LLC

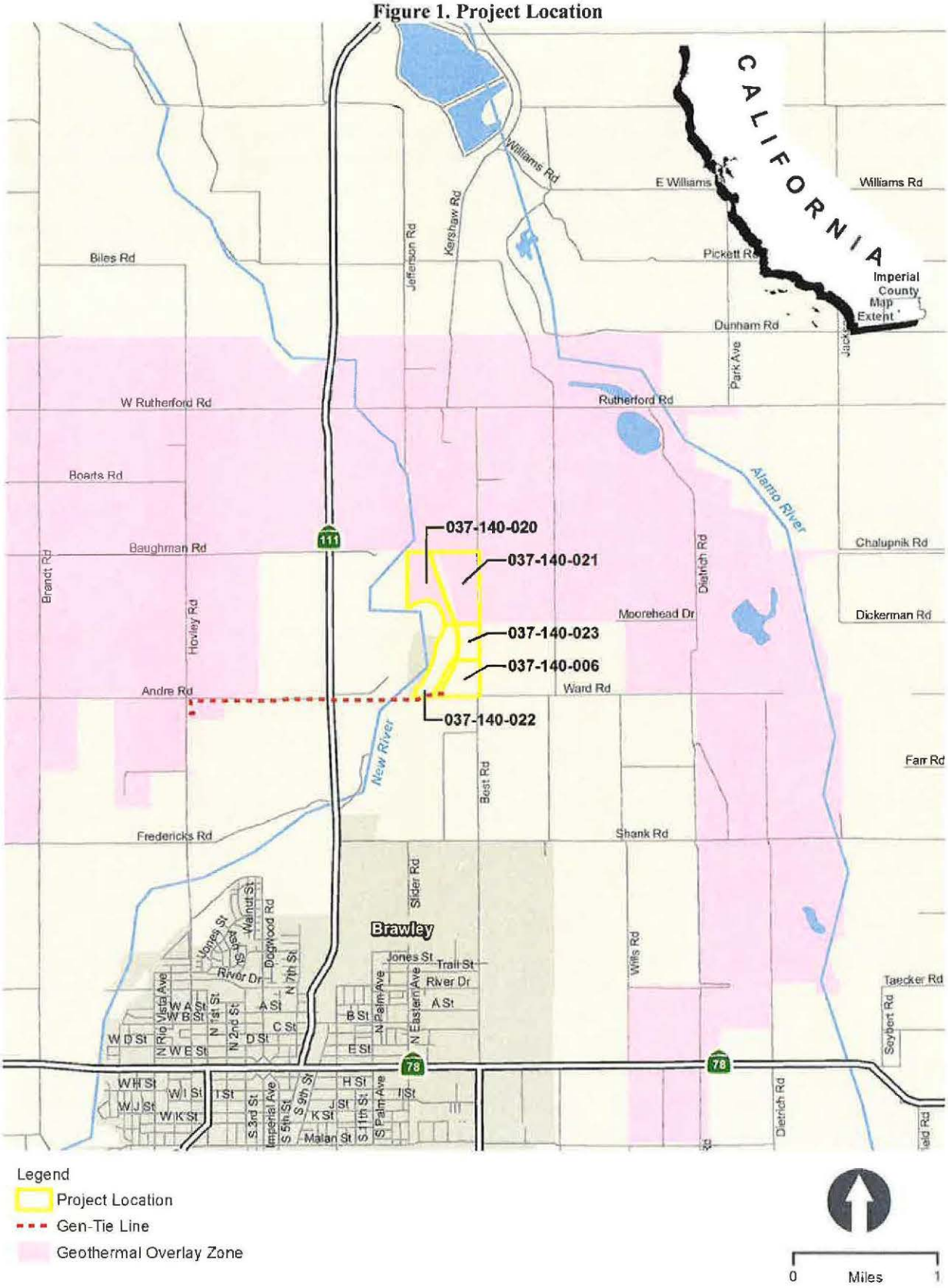
Date 7/21/21 Signature

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 BRAWLEY 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 Brawley 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 **August 12, 2021 at 6:00 P.M**. The scoping meeting will be held at the Planning & Development Services, Conference room located at 901 Main Street, El Centro, CA 92243. Comments regarding the scope of the EIR will be accepted at this meeting.

SUBJECT: Brawley Solar Energy Facility Project EIR

BOARD OF SUPERVISORS CONSIDERATION: To Be Determined.

PROJECT LOCATION: The project site is located on approximately 227 acres of privately-owned land (Assessor Parcel Nos. [APN] 037-140-006, -020, -021, -022, and -023) in the unincorporated area of Imperial County, CA. The site is approximately one mile north from the City of Brawley's jurisdictional limit. The project site is south of Baughman Road, west of Best Road, and north of Andre Road. The Union Pacific Railway transects the project site. The City of Brawley Wastewater Treatment Plant is located along the western edge of the project site.

The gen-tie line would originate from the southern edge of the project site and then head west along Andre Road to interconnect to the Imperial Irrigation District's (IID) existing North Brawley Geothermal Power Plant substation, located at Hovley Road and Andre Road. The gen-tie line route would be approximately 1.8 miles.

PROJECT DESCRIPTION: The project applicant, ORNI 30, LLC, proposes to construct and operate a 40 megawatt (MW) photovoltaic (PV) solar facility with an integrated 40 MW battery energy storage system (BESS) (not to exceed 80 MW) on approximately 227 acres of privately-owned land. The proposed project would be comprised of bifacial solar PV arrays panels, an on-site substation, BESS, fiberoptic line or microwave tower, inverters, transformers, underground electrical cables and access roads. The proposed project would connect to the existing North Brawley Geothermal Power Plant substation located southwest of the project site via an approximately 1.8-mile long aboveground 92 kilovolt generation tie line.

The County Land Use Ordinance, Division 17, includes the Renewable Energy (RE) Overlay Zone, which authorizes the development and operation of renewable energy projects with an approved conditional use permit (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. The northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site (APNs 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006) is located outside of the RE Overlay Zone.

Implementation of the project requires an amendment to the County's General Plan Renewable Energy and Transmission Element, Zone Change, and approval of a CUP, as described below:

- **General Plan Amendment:** The applicant is requesting a General Plan Amendment to include/classify all five project parcels (Assessor Parcel Nos. [APN] 037-140-006, -020, -021, -022, and -023) into the RE Overlay Zone. No change in the underlying General Plan land use (Agriculture) is proposed.
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- **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 with an integrated BESS on land zoned General Agricultural with a REG Overlay Zone (A-2-REG).
- **Water Supply Assessment:** Implementation of the project would require the approval of the Water Supply Assessment.

PROJECT APPLICANT: ORNI 30, 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; Agricultural Resources; Air Quality; Biological Resources; Cultural Resources; Geology/Soils; Greenhouse Gas Emissions/Climate Change; Hazards and Hazardous Materials; Hydrology/Water Quality; Land Use/Planning; Public Services; Transportation; Tribal Cultural Resources; Utilities and Service Systems including water supply; Cumulative Impacts; and, Growth-Inducing Impacts.

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 David Black, 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: July 26, 2021 through August 30, 2021

Imperial County
Planning & Development Services Department

NOTICE OF PREPARATION OF DRAFT EIR FOR BRAWLEY 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 Brawley 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 **August 12, 2021 at 6:00 P.M.** The scoping meeting will be held at the Planning & Development Services, Conference room located at 901 Main Street, El Centro, CA 92243. Comments regarding the scope of the EIR will be accepted at this meeting.

SUBJECT: Brawley Solar Energy Facility Project EIR

BOARD OF SUPERVISORS CONSIDERATION: To Be Determined.

PROJECT LOCATION: The project site is located on approximately 227 acres of privately-owned land (Assessor Parcel Nos. [APN] 037-140-006, -020, -021, -022, and -023) in the unincorporated area of Imperial County, CA. The site is approximately one mile north from the City of Brawley's jurisdictional limit. The project site is south of Baughman Road, west of Best Road, and north of Andre Road. The Union Pacific Railway transects the project site. The City of Brawley Wastewater Treatment Plant is located along the western edge of the project site.

The gen-tie line would originate from the southern edge of the project site and then head west along Andre Road to interconnect to the Imperial Irrigation District's (IID) existing North Brawley Geothermal Power Plant substation, located at Hovley Road and Andre Road. The gen-tie line route would be approximately 1.8 miles.

PROJECT DESCRIPTION: The project applicant, ORNI 30, LLC, proposes to construct and operate a 40 megawatt (MW) photovoltaic (PV) solar facility with an integrated 40 MW battery energy storage system (BESS) (not to exceed 80 MW) on approximately 227 acres of privately-owned land. The proposed project would be comprised of bifacial solar PV arrays panels, an on-site substation, BESS, fiberoptic line or microwave tower, inverters, transformers, underground electrical cables and access roads. The proposed project would connect to the existing North Brawley Geothermal Power Plant substation located southwest of the project site via an approximately 1.8-mile long aboveground 92 kilovolt generation tie line.

The County Land Use Ordinance, Division 17, includes the Renewable Energy (RE) Overlay Zone, which authorizes the development and operation of renewable energy projects with an approved conditional use permit (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. The northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site (APNs 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006) is located outside of the RE Overlay Zone.

Implementation of the project requires an amendment to the County's General Plan Renewable Energy and Transmission Element, Zone Change, and approval of a CUP, as described below:

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- **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 with an integrated BESS on land zoned General Agricultural with a REG Overlay Zone (A-2-REG).
- **Water Supply Assessment:** Implementation of the project would require the approval of the Water Supply Assessment.

PROJECT APPLICANT: ORNI 30, 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; Agricultural Resources; Air Quality; Biological Resources; Cultural Resources; Geology/Soils; Greenhouse Gas Emissions/Climate Change; Hazards and Hazardous Materials; Hydrology/Water Quality; Land Use/Planning; Public Services; Transportation; Tribal Cultural Resources; Utilities and Service Systems including water supply; Cumulative Impacts; and, Growth-Inducing Impacts.

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 David Black, 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: July 26, 2021 through August 30, 2021

11483653

Initial Study

Initial Study and NOP

Brawley Solar Energy Facility Project

Imperial County, CA

July 2021

Reviewed by:	**Prepared by:**
County of Imperial	HDR Engineering, Inc.
Planning & Development Services Department	591 Camino de la Reina, Suite 300
801 Main Street	San Diego, CA 92108
El Centro, CA 92243	

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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 Brawley 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.

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:** Brawley 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:** David Black, Planner IV, 442-265-1746
4. **Project location:** The project site is located on approximately 227 acres of privately-owned land in the unincorporated area of Imperial County, CA. The site is approximately one mile north from the City of Brawley's jurisdictional limit. The project site is south of Baughman Road, west of Best Road, and north of Andre Road. The Union Pacific Railway transects the project site. The City of Brawley Wastewater Treatment Plant is located along the western edge of the project site.

   The gen-tie line would originate from the southern edge of the project site and then head west along Andre Road to interconnect to the Imperial Irrigation District's (IID) existing North Brawley Geothermal Power Plant substation, located at Hovley Road and Andre Road. The gen-tie line route would be approximately 1.8 miles.
5. **Project sponsor's name and address:** ORNI 30, LLC, 6140 Plumas Street, Reno, Nevada 89519
6. **General Plan Designation:** Agriculture
7. **Zoning:** A-2-G (General Agricultural with a Geothermal Overlay)
8. **Description of project:** The project applicant, ORNI 30, LLC, proposes to construct and operate a 40 megawatt (MW) photovoltaic (PV) solar facility with an integrated 40 MW battery storage system (BESS) (not to exceed 80 MW) on approximately 227 acres of privately-owned land. The proposed project would be comprised of bifacial solar PV arrays panels, an on-site substation, BESS, fiberoptic line or microwave tower, inverters, transformers, underground electrical cables and access roads. The proposed project would connect to the existing North Brawley Geothermal Power Plant substation located southwest of the project site via an approximately 1.8-mile long aboveground 92 kilovolt generation tie line.
9. **Surrounding land uses and setting: Briefly describe the project's surroundings:** The project site contains alfalfa fields within different levels of harvest. North and east of the project site is undeveloped agricultural land. South of the project site is a mixture of undeveloped agricultural land and dirt lots used for staging activities. The Del Rio Country Club golf course is located to the south of the site. The City of Brawley Wastewater Treatment Plant is located along the western edge 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
- Imperial Irrigation District – Water supply agreement/permit for water use lease agreement

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 consultation request letter on July 20, 2021.

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	☐	☐	☐

Jim Minnick, Director of Planning/EEC Chairman

Signature

Date:

Project Summary

Project Location

The project site is located on approximately 227 acres of privately-owned land in the unincorporated area of Imperial County, CA. The site is approximately one mile north from the City of Brawley's jurisdictional limit (Figure 1). As shown in Figure 2, the project site is south of Baughman Road, west of Best Road, and north of Andre Road. The Union Pacific Railway transects the project site. The City of Brawley Wastewater Treatment Plant is located along the western edge of the project site.

The gen-tie line would originate from the southern edge of the project site and then head west along Andre Road to interconnect to the Imperial Irrigation District's (IID) existing North Brawley Geothermal Power Plant substation, located at Hovley Road and Andre Road. The gen-tie line route would be approximately 1.8 miles.

Project Summary

The project applicant, ORNI 30, LLC, proposes to construct and operate a 40 megawatt (MW) photovoltaic (PV) solar facility with an integrated 40 MW battery storage system (BESS) (not to exceed 80 MW) on approximately 227 acres of privately-owned land. The proposed project would be comprised of bifacial solar PV arrays panels, an on-site substation, BESS building, fiberoptic line or microwave tower, inverters, transformers, underground electrical cables and access roads. The proposed project would connect to the existing North Brawley Geothermal Power Plant substation located southwest of the project site via an approximately 1.8-mile long aboveground 92 kilovolt generation tie line.

Environmental Setting

The project site contains alfalfa fields within different levels of harvest. North and east of the project site is undeveloped agricultural land. South of the project site is a mixture of undeveloped agricultural land and dirt lots used for staging activities. The Del Rio Country Club golf course is located to the south of the site. The City of Brawley Wastewater Treatment Plant is located along the western edge of the project site.

General Plan Consistency

The proposed project is located within an unincorporated area of the County. The existing General Plan land use designation is Agriculture. The project site is currently zoned A-2-G (General Agricultural with a Geothermal Overlay). Construction of a solar facility would be allowed within the existing zoning under a Conditional Use Permit.

The County Land Use Ordinance, Division 17, includes the Renewable Energy (RE) Overlay Zone, which authorizes the development and operation of renewable energy projects, with an approved CUP. CUP applications proposed for specific renewable energy project not located in the RE Overlay Zone would not be allowed without an amendment to the RE Overlay Zone. As shown in Figure 1, the northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site (APNs 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006) is located outside of the RE Overlay Zone. Therefore, the proposed project requires a General Plan Amendment and Zone Change to

include/classify all five project parcels into the RE Overlay Zone. No change in the underlying General Plan land use (Agriculture) is proposed.

Figure 1. Regional Location

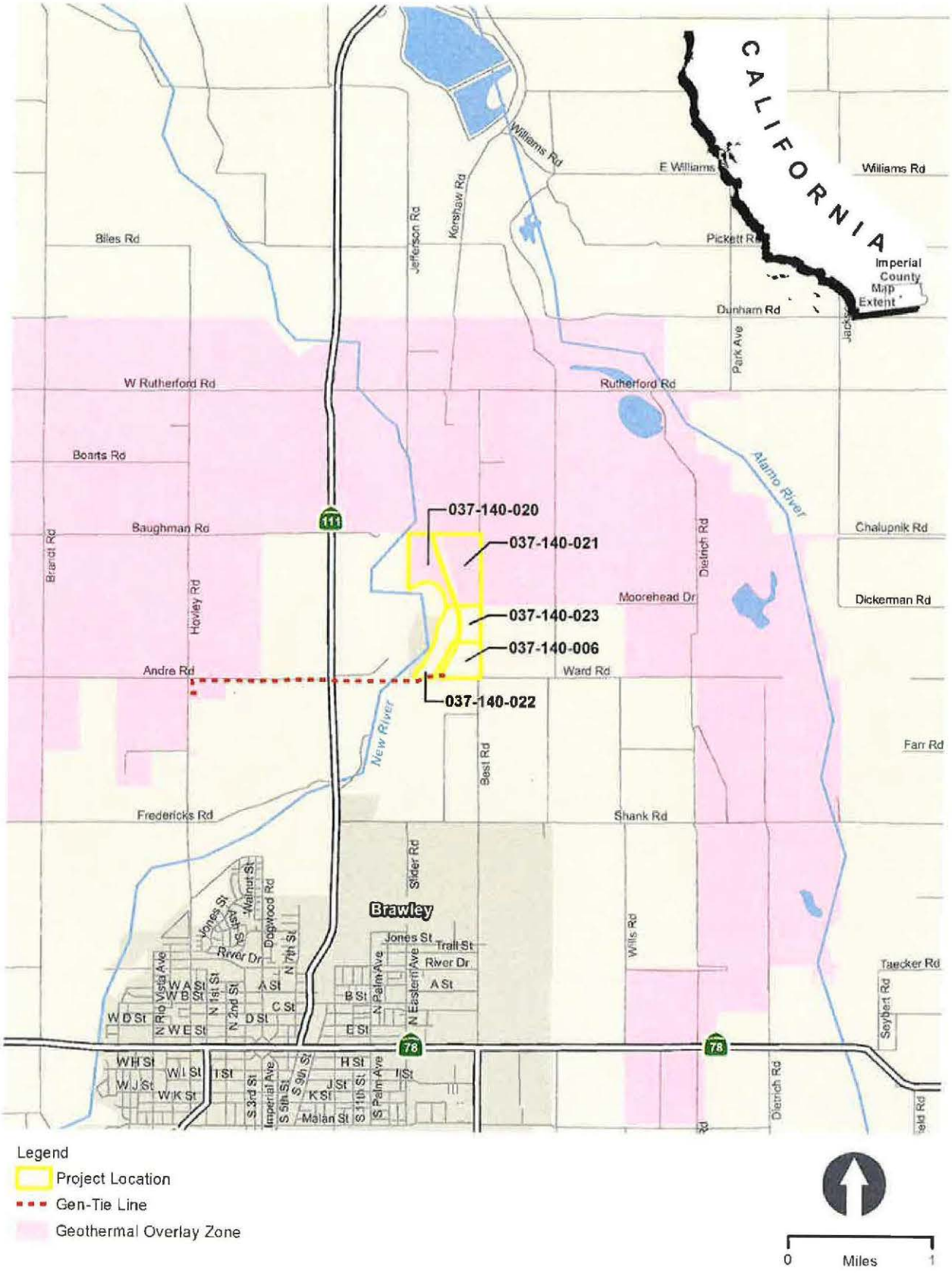
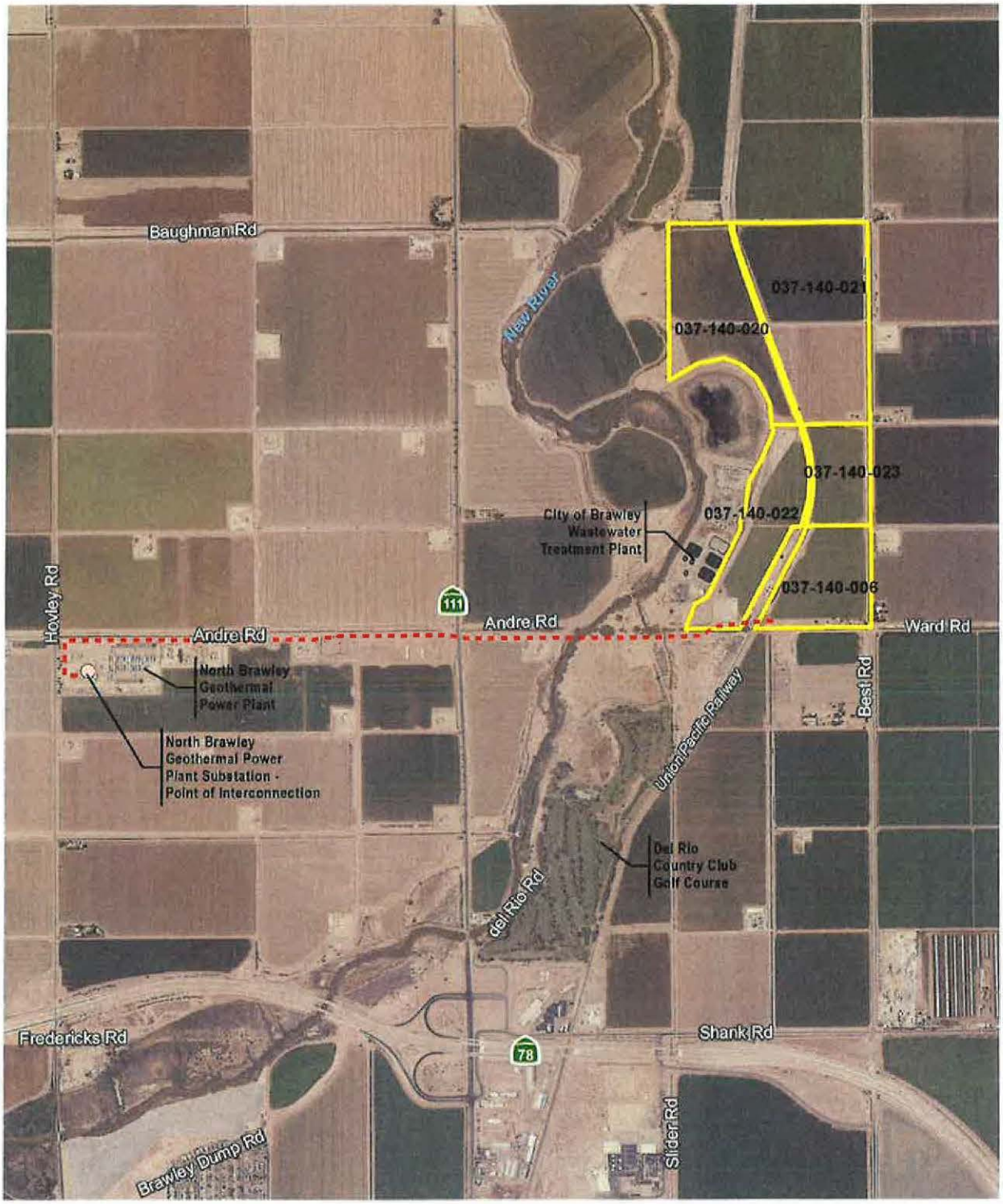


Figure 2. Project Site



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.** According to the Conservation and Open Space Element of the Imperial County General Plan, the project site is not located within an area that has been formally identified as a federal, state, or county scenic vista (County of Imperial 2016). No scenic vistas or areas with high visual quality would be disrupted. Thus, no impact is identified for this issue area and no further analysis is warranted.

b) **No Impact.** According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System (Caltrans 2018), 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 proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway. Therefore, no impact is identified for this issue area and no further analysis is warranted.

c) **Potentially Significant Impact.** Although the project site 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 surrounding area. Therefore, a potentially significant impact is identified for this issue area. A visualization study will be prepared for the project and this issue will be addressed in the EIR.

d) **Potentially Significant Impact.** Minimal lighting is required for project operation and is limited to safety and security functions. All lighting will be directed away from any public right-

of-way; however, there are no heavily traveled public roadways in immediate proximity to the project site.

The solar panels will be constructed of low reflective materials; therefore, it is not anticipated that they would result in creating glare. Additionally, the proposed project is located in a rural undeveloped area of Imperial County. There are no established residential neighborhoods immediately adjacent to the project site. However, there are three residences located immediately east of the project site along Best Road. Although the proposed project is not expected to create a new source of substantial light or glare affecting day or nighttime views, a glare study will be prepared for the proposed project and this issue will be addressed in the EIR. Therefore, a potentially significant impact is identified for this issue area.

The Brawley Municipal Airport is located approximately 1.5 miles south of the project site. Although the solar panels will be constructed of low reflective materials, the potential for glare to impact aircraft will be analyzed further in the EIR.

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) **Potentially Significant Impact.** According to the farmland maps prepared by the California Department of Conservation (DOC) (California DOC 2018), the majority of the project site is designated as Farmland of Statewide Importance, with a pocket of Prime Farmland located in the southern portion of the project site. Therefore, implementation of the proposed project

may result in a potentially significant impact associated with the conversion of Prime Farmland and Farmland of Statewide Importance to non-agricultural use.

b) **Potentially Significant Impact.** The project site is currently designated by the General Plan as "Agriculture" and is zoned A-2-G (General Agricultural with a Geothermal Overlay). Pursuant to Title 9, Division 5, Chapter 8 (County of Imperial 2019a), the following uses are permitted in the A-2 zone subject to approval of a CUP from Imperial County: solar energy electrical generator, battery storage facility, electrical substations, communication towers, and facilities for the transmission of electrical energy. Because the project site is located on lands designated for agricultural uses, this issue will be analyzed in further detail in the EIR.

According to the 2016/2017 Imperial County Williamson Act Map produced by the California Department of Conservation's Division of Land Resource Protection (California DOC 2016), the project site is not located on Williamson Act contracted land. Therefore, the proposed project would not conflict with a Williamson Act contract and no impact would occur.

c) **No Impact.** There are no existing forest lands, timberlands, or timberland zoned "Timberland Production" within or immediately adjacent to the project site 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 within or immediately adjacent to 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) **Potentially Significant Impact.** Refer to response II. a) above.

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 (ICAPCD) in the Imperial County portion of the Salton Sea Air Basin. Construction of the proposed project would create temporary emissions of dust, fumes, equipment exhaust, and other air contaminants that may conflict with the ICAPCD's rules and regulations. No stationary source emissions are proposed from the proposed project; however, temporary construction emissions have the potential to result in a significant air quality impact. An air quality and greenhouse gas study will be prepared to analyze the proposed project's consistency with air quality plans, and will be included in the EIR analysis.

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 the federal ozone (O_3), particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) standards, and state standards for O_3 and PM_{10}. 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 and greenhouse gas study will be prepared to analyze the proposed project's potential air quality impacts and will be included in the EIR analysis.

c) **Potentially Significant Impact.** The project site is located in a rural agricultural area of Imperial County. The nearest sensitive receptor to the project site is a single-family home located as near as 40 feet to the north side of the project site (near the northwest corner of the project site). There are also homes located on the east side of Best Avenue that are as near as 120 feet east of the project site. This issue will be addressed in the air quality and greenhouse gas 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. Therefore, 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.** According to the Conservation and Open Space Element of the General Plan (County of Imperial 2016), numerous special-status species occur in the County, and of particular concern is the western burrowing owl which may have the potential to occur within the project site. Burrowing owls and burrows are commonly found along canals and drains. Although there are no Imperial Irrigation District (IID) canals located within

the project site, access roads, canals, and other drainages are located in the project vicinity, such as the Best Canal and Livesley Drain, which are immediately east and south of the project site, respectively. Thus, a potentially significant impact is identified for this issue area. A biological resources report 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.** Refer to response IV. a) above.

c) **Potentially Significant Impact.** Currently, the project site contains alfalfa fields at different levels of harvest. The Best Canal and existing drain structure(s) would not be removed, relocated or impacted; and no washes are found within the project site.

The project site is adjacent to the New River and according to the United States Fish and Wildlife Service (USFWS) National Wetland Inventory, there are also several project adjacent freshwater ponds. There does not appear to be ponds within the project site; however, the project site has drainage channels that could potentially be considered jurisdictional waters by California Department of Fish and Wildlife (CDFW) and United States Army Corps of Engineers (USACE). Therefore, a potentially significant impact is identified for this issue area. 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.** Currently, the project site contains alfalfa fields at different levels of harvest. The disturbed nature of the site indicates that the presence of significant or undamaged cultural resources on the site is unlikely. Although the proposed project is not expected to cause a substantial adverse change in the significance of a historical resource or archaeological resource, a potentially significant impact could occur if an unanticipated find is discovered. A cultural resources report that will address the proposed project's potential impacts on historic and prehistoric resources will be prepared and this issue will be addressed in the EIR.

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 addressed 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.** Information contained in this section is summarized from the *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis* prepared for the project (Vista Environmental 2021a). The proposed project would impact energy resources during construction and operation. Energy resources that would be potentially impacted include electricity, and petroleum-based fuel supplies and distribution systems. The proposed project would not utilize any natural gas during either construction or operation of the proposed project, and no further analysis of natural gas is provided in this analysis.

The following discussion calculates the potential energy consumption associated with the construction and operation of the proposed project and analyzes if any energy utilized by the proposed project is wasteful, inefficient, or unnecessary consumption of energy resources.

Construction Energy

The construction activities for the proposed project are anticipated to include: 1) Site Preparation; 2) PV System Installation and Testing, and 3) Site Clean-up and Restoration. The proposed project would consume energy resources during construction in three (3) general forms:

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, as well as delivery and haul truck trips (e.g., hauling of construction waste material to off-site reuse and disposal facilities);
2. Electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power; and,
3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction-Related Electricity

During construction of the proposed project, electricity would be consumed to construct the new structures and infrastructure. Electricity would be supplied to the project site by IID and

would be obtained from the existing electrical lines in the vicinity of the project site. The use of electricity from existing power lines rather than temporary diesel or gasoline powered generators would minimize impacts on energy use. Electricity consumed during project construction would vary throughout the construction period based on the construction activities being performed. Various construction activities include electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power. Such electricity demand would be temporary, nominal, and would cease upon the completion of construction. Overall, construction activities associated with the proposed project would require limited electricity consumption that would not be expected to have an adverse impact on available electricity supplies and infrastructure. Therefore, the use of electricity during project construction would not be wasteful, inefficient, or unnecessary.

The proposed project would include installation of an approximately 1.8 mile long overhead power line from the southwest corner of the project site to the North Brawley 1 Substation, which would provide adequate capacity to handle the power generated and utilized by the proposed project. Where feasible, the new service installations and connections would be scheduled and implemented in a manner that would not result in electrical service interruptions to other properties. Compliance with County and IID guidelines and requirements would ensure that the proposed project fulfills its responsibilities relative to infrastructure installation, coordinates any electrical infrastructure removals or relocations, and limits any impacts associated with construction of the project. Construction of the project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

Construction-Related Petroleum Fuel Use

Petroleum-based fuel usage represents the highest amount of transportation energy potentially consumed during construction, which would be utilized by both off-road equipment operating on the project site and on-road automobiles transporting workers to and from the project site and on-road trucks transporting equipment and supplies to the project site.

The off-road equipment utilized during construction of the proposed project would consume 84,890 gallons of fuel. The on-road trips generated from construction of the proposed project would consume 77,046 gallons of fuel. As such, the combined fuel used from off-road construction equipment and on-road construction trips for the proposed project would result in the consumption of 161,935 gallons of petroleum fuel. This equates to 0.17 percent of the gasoline and diesel consumed annually in Imperial County. As such, the construction-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates.

Construction activities associated with the proposed project would be required to adhere to all State and SCAQMD regulations for off-road equipment and on-road trucks, which provide minimum fuel efficiency standards. As such, construction activities for the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Impacts regarding transportation energy would be less than significant.

Operations-Related Electricity

Operation of the proposed project would result in consumption and production of electricity at the project site. The proposed PV solar panels will generate 97,333,333 kWh per year of electricity and operation of the project will use 1,946,667 kWh per year of electricity, which would result in the net generation of 95,386,667 kWh per year of electricity. This equates to 2.8 percent of the electricity consumed annually by IID. As such, the operations-related electricity use would provide a significant renewable resource for the IID and would help IID achieve the State' Renewable Portfolio Standards requirement for non-carbon sources of electricity. No impact would occur from electricity-related energy consumption from the proposed project.

Operations-Related Vehicular Petroleum Fuel Usage

Operation of the proposed project would result in increased consumption of petroleum-based fuels related to vehicular travel to and from the project site. The proposed project would consume 1,036 gallons of petroleum fuel per year from vehicle travel. This equates to 0.001 percent of the gasoline and diesel consumed in Imperial County annually. As such, the operations-related petroleum use would be nominal, when compared to current petroleum usage rates

It should be noted that, the proposed project would comply with all Federal, State, and County requirements related to the consumption of transportation energy and would provide a non-carbon source of electricity to power electric vehicles in Imperial County. Thus, impacts with regard transportation energy supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

b) **Less than Significant Impact.** The proposed project would help California meet its Renewable Portfolio Standard of 60 percent of retail electricity sales from renewable sources by the end of 2030 and 100 percent by 2045. 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 (CPUC) and the definition of "in-state renewable electricity generation facility" in Section 25741 of the CPUC. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy of energy efficiency. This is considered a less than significant impact.

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.** According to the California Earthquake Hazards Zone Application (California DOC 2019), the project site is not located within a State of California, Alquist-Priolo Earthquake Fault Zone. The nearest Alquist-Priolo Earthquake Fault Zone is located approximately 4.75 miles from the project site. Therefore, no impact is identified for this issue area.

aii) **Potentially Significant Impact.** The project site is located in the seismically-active Imperial Valley 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 area. A geotechnical report that will address the proposed project's potential impacts on geology and soils will be prepared and this issue will be addressed in the EIR.

aiii) **Potentially Significant Impact.** Liquefaction occurs when granular soil below the water table is subjected to vibratory motions, such as vibratory motion 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.

All these conditions may exist to some degree at the project site. Therefore, there is a potentially significant impact associated with liquefaction. A geotechnical report that will address the proposed project's potential impacts on geology and soils will be prepared and this issue will be addressed in the EIR.

aiv) **No Impact.** According to Figure 2: Landslide Activity in the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), 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.** According to Figure 3: Erosion Activity in the Soil the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the project site is within a generally flat area with low levels of natural erosion. However, 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 a less than significant level.

c) **Potentially Significant Impact.** Near surface soils within the project site will need to be identified to determine if the soils are unstable. Therefore, this issue is potentially significant and will be analyzed in the EIR.

d) **Potentially Significant Impact.** Near surface soils within the project site will need to be identified to determine if they consist of soils having expansion potential. Therefore, this issue is potentially significant and will be analyzed in the EIR.

e) **No Impact.** The proposed project would not require the installation of septic tanks or alternative wastewater disposal systems. 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 proposed 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.** In the long-term, the proposed project is expected to provide a benefit with respect to reduction of greenhouse gas emissions. However, 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. Thus, a potentially significant impact is identified for this issue area. An air quality and greenhouse gas study will be prepared for the proposed project, and this issue will be addressed in the EIR.

b) **Potentially Significant Impact.** Refer to response VIII. a) above.

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 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. Operation of the proposed project will be conducted remotely. Therefore, no habitable structures (e.g. housing or operation and maintenance [O&M] building) are proposed on the project site.

Regular and routine maintenance of the proposed 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. Therefore, this is considered a less than significant impact.

b) **Less than Significant Impact.** Refer to response IX. 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 May 2021, the project site is not listed as a hazardous materials site. No impact is identified for this issue area.

e) **Potentially Significant Impact.** The project site is within 2 miles of a public airport. The nearest public airport is the Brawley Municipal Airport located approximately 1.5 miles south of the project site. However, the project site is outside of the airport compatibility zones of the Brawley Municipal Airport (County of Imperial 1996). Although the solar panels will be constructed of low reflective materials, the potential for glare to impact aircraft will be analyzed further in the EIR.

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 (County of Imperial 1997), the potential for a major fire in the unincorporated areas of the County is generally low.

Proposed project facilities would be designed, constructed, and operated in accordance with applicable fire protection and other environmental, health, and safety requirements (e.g., CPUC safety standards). Primary access to the project site would be located off Best Avenue. A secondary emergency access road would be located in the northwest portion of the project site. Access roads would also be constructed with an all-weather surface, to meet the County Fire Department's standards. Points of ingress/egress would be accessed via locked gates that can be opened by any emergency responders. Additionally, water for emergency fire suppression would likely be provided by water trucks during construction and the existing ground storage tank on-site which is filled by the Best Canal during operation. Based on these considerations, a less than significant impact is identified for this issue area.

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). 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. If they are not intercepted or are left uncontrolled, the polluted runoff would otherwise freely sheet flow from the project site to the IID Imperial Valley Drains and could result in the accumulation of these pollutants in the receiving waters. 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. The approximate 20,000 to 30,000 gallons of water per day required during construction would be obtained from the existing ground storage tank on-site which is filled by the Best Canal. This water would be used for earthwork, soil conditioning, dust suppression, and compaction efforts. 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. Estimated annual water consumption for operation and maintenance of the proposed project, including periodic PV module washing, would be approximately 0.81-acre annually, which would be trucked to the project site as needed. Therefore, the panels and their mounting foundation would not impede groundwater recharge. A less than significant impact is identified for this issue area.

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 Imperial County standards which require preparation, review, and approval of a grading plan by the Imperial County Engineer. Therefore, the proposed project would not result in substantial erosion or siltation on- or off-site. A less than significant impact is identified for this issue area.

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 surface on the project site will remain pervious. Therefore, the proposed project would not substantially increase the rate of runoff in a manner which would result in flooding on- or off-site or exceed the capacity of existing or planned stormwater drainage systems and provide substantial additional sources of polluted runoff. A less than significant impact is identified for this issue area.

ciii) **Less than Significant Impact.** Refer to response X. cii) above.

civ) **No Impact.** According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Panel 06025C1025C) (FEMA 2008), the project site is within Zone X, which is an area determined to be outside of the 0.2 percent annual chance of a flood. The proposed 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. No impact is identified for this issue area and no further analysis is warranted.

d) **No Impact.** The project site is within Zone X, which is an area determined to be outside of the 0.2 percent annual chance of a flood. The project site is not located near any large bodies of water. The Salton Sea is located approximately 12 miles northwest of the project site. Furthermore, the relatively flat project site is approximately 100 miles inland from the Pacific Ocean. Therefore, the proposed project would not risk release of pollutants due to inundation by flood, tsunami or seiche. No impact is identified for this issue area.

e) **No Impact.** The proposed project will not involve the use of groundwater nor require dewatering activities. Water to be used during project-related construction activities will obtained from the existing ground storage tank on-site which is filled by the IID Best Canal for earthwork, soil conditioning, dust suppression, and compaction efforts. Water provided by the IID Best Canal would be obtained in conformance with IID construction water acquisition requirements. Therefore, the proposed project will not conflict with or obstruct

implementation of a water quality control plan or sustainable groundwater management plan. No impact is identified for this issue area.

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 proposed project is located in a sparsely populated, agriculturally zoned portion of unincorporated 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. No impact is identified for this issue area.

b) **Potentially Significant Impact**. The project parcels are currently zoned as A-2-G (General Agricultural with a Geothermal Overlay). Pursuant to Title 9, Division 5, Chapter 8 (County of Imperial 2019a), the following uses are permitted in the A-2 zone subject to approval of a CUP from Imperial County: solar energy electrical generator, battery storage facility, electrical substations, communication towers, and facilities for the transmission of electrical energy.

The County Land Use Ordinance, Division 17, includes the Renewable Energy (RE) Overlay Zone, which authorizes the development and operation of renewable energy projects, with an approved CUP. CUP applications proposed for specific renewable energy project not located in the RE Overlay Zone would not be allowed without an amendment to the RE Overlay Zone. As shown in Figure 1, the northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the Geothermal Overlay Zone. However, the entire project site (APNs 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006) is located outside of the RE Overlay Zone.

Implementation of the project requires an amendment to the County's General Plan Renewable Energy and Transmission Element, Zone Change, and approval of a CUP, as described below:

- **General Plan Amendment:** The applicant is requesting a General Plan Amendment to include/classify all five project parcels (Assessor Parcel Nos. [APN] 037-140-006, -020, -021, -022, and -023) into the RE Overlay Zone. No change in the underlying General Plan land use (Agriculture) is proposed.
- **Zone Change:** The entire project site is currently zoned General Agricultural with a Geothermal Overlay (A-2-G). The applicant is requesting a Zone Change to include/classify all five project parcels into the Renewable Energy/Geothermal (REG) Overlay Zone (A-2-REG).
- **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 with an integrated BESS on land zoned General Agricultural with a REG Overlay Zone (A-2-REG).

The proposed General Plan Amendment and Zone Change may result in a conflict with an applicable land use plan, policy or regulation. A potentially significant impact has been identified for this issue, and 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 (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.

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.** Information contained in this section is summarized from the Noise Impact Analysis prepared for the project (Vista Environmental 2021b). The following section analyzes the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the County standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include: 1) Site Preparation; 2) PV System Installation and Testing, and 3) Site Clean-up and Restoration. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the project site are single-family homes located as near as 40 feet to the north side of the project site (near the northwest corner of the project site). There are also homes located on the east side of Best Avenue that are as near as 120 feet east of the project site.

The General Plan Noise Element includes Construction Noise Standards that limits the noise created from construction equipment to 75 dB Leq, averaged over an eight (8) hour period at the nearest sensitive receptor. In addition, the Construction Noise Standards limit construction equipment operation to between the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays.

For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. Since the County's construction noise standard is based on the noise level over an 8-hour period and in a typical day the proposed construction equipment would operate over the entire project site, the use of the methodology detailed in the FTA Manual for a General Assessment would provide a reasonable estimate of the construction-related noise levels created by the proposed project.

Table 1 shows that greatest construction noise impacts would be as high as 53 dBA Leq during the PV system installation and testing phase at the nearest homes to the northwest, northeast, and southeast of the project site. All calculated construction noise levels shown in Table 1 are within the County's construction noise standard of 75 dBA and would also be below the existing ambient daytime noise levels in the vicinity of the nearby homes. Therefore, through adherence to the limitation of allowable construction times provided in the General Plan Noise Element, construction-related noise levels would not exceed any standards established in the General Plan or Noise Ordinance nor would construction activities create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

Table 1. Construction Noise Levels at the Nearby Homes

Construction Phase	Construction Noise Level (dBA Leq) at:		
	Home to Northwest[1]	Home to Northeast[2]	Home to Southeast[3]
Site Preparation	52	52	52
PV System Installation and Testing	53	53	53
Site Clean-Up and Restoration	52	52	52
Construction Noise Threshold[4]	**75**	**75**	**75**
Ambient Daytime Noise Level	66.5	60.2	62.0
Exceed Thresholds?	**No**	**No**	**No**

[1] The distance from the center of the project site to the home to the northwest was measured at 2,900 feet.
[2] The distance from the center of the project site to the homes to the northeast was measured at 2,900 feet.
[3] The distance from the center of the project site to the home to the southeast was measured at 2,850 feet.
[4] Construction Noise Threshold obtained from the General Plan Noise Element (County of Imperial, 2015).
Source: Vista Environmental 2021b

Operational-Related Noise

The proposed project would consist of the development of a solar facility with a BESS and a substation. Since the proposed project would be operated on an unstaffed basis and monitored remotely from the Brawley Geothermal Power Plant control room, operation of the proposed project would not typically generate any additional vehicle traffic on the nearby roadways. As such, potential noise impacts associated with the operations of the proposed project would be limited to onsite noise sources. The proposed PV solar panels do not create any operational noise, however the proposed BESS Enclosures (AC Unit noise), Power Conversion System (PCS), Power Distribution Center (PDC) that would be located at the BESS, and auxiliary transformers, and Battery Step Up Transformer that would be located at the proposed substation are known sources of noise that have been analyzed below.

Both the General Plan Noise Element and Section 90702.00 provide the same noise level limits at the property line of the nearby homes of 50 dBA Leq-1hour between 7 a.m. and 10 p.m. and 45 dBA Leq-1hour between 10 p.m. and 7 a.m. When the ambient noise level is equal to or exceeds the above noise standards, the proposed noise source shall not exceed the ambient plus 3 dB Leq.

In order to determine the noise impacts from the operation of onsite noise making equipment, noise specifications from previously prepared noise reports were obtained and are shown in Table 2. The noise levels from each source were calculated through use of standard geometric spreading of noise from a point source with a drop-off rate of 6 dB for each doubling of the distance between the source and receiver.

Table 2 shows that the proposed project's onsite operational noise from the anticipated onsite noise sources would not exceed the applicable noise standards at the nearby homes. Therefore, operational onsite noise impacts would be less than significant.

Table 2. Operational Noise Levels at the Nearby Homes

Noise Source	Home to Northwest		Home to Northeast		Home to Southeast	
	Distance - Source to Home (feet)	Noise Level[1] (dBA Leq)	Distance - Source to Home (feet)	Noise Level[1] (dBA Leq)	Distance - Source to Home (feet)	Noise Level[1] (dBA Leq)
BESS Enclosures[2]	5,050	25	5,100	25	850	40
Power Conversion System[3]	5,050	22	5,100	22	850	38
Power Distribution Center[4]	5,050	22	5,100	22	850	38
Auxiliary Transformers[5]	5,030	31	5,280	31	1,150	44
Battery Step up Transformer[6]	5,030	31	5,280	31	850	47
Combined Noise Levels		**35**		**35**		**50**
County Noise Standard[7] (day/night)		**69.5/67.9**		**63.2/58.6**		**65.0/59.2**
Exceed County Noise Standards?		**No/No**		**No/No**		**No/No**

Notes:
[1] The noise levels were calculated through use of standard geometric spreading of noise from a point source with a drop-off rate of 6 dB for each doubling of the distance between the source and receiver.
[2] BESS Enclosures is based on a reference noise measurement of 88.6 dBA at 1 meter.
[3] Power Conversion System is based on a reference noise measurement of 86.1 dBA at 1 meter.
[4] Power Distribution Center is based on a reference noise measurement of 86.1 dBA at 1 meter.
[5] Auxiliary Transformers are based on a reference noise measurement of 95.1 dBA at 1 meter.
[6] Battery Step up Transformer is based on a reference noise measurement of 95.1 dBA at 1 meter.
[7] County Noise Standard based on ambient noise level shown in **Error! Reference source not found.** plus 3 dB at the nearby homes.
Source: Vista Environmental 2021b

b) **Less than Significant Impact.** The following analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptor to the project site is a single-family home located as near as 40 feet to the north side of the project site (near the northwest corner of the project site).

Since neither the Municipal Code nor the General Plan provides any thresholds related to vibration, Caltrans guidance has been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. A large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest home (40 feet away) would be 0.06 inch per second PPV. The vibration level at the nearest home, would be below the 0.25 inch per second PPV threshold detailed above. Impacts would be less than significant.

Operations-Related Vibration Impacts

The proposed project would consist of the operation of a solar energy facility. The on-going operation of the proposed project would not include the operation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from the operation of the proposed project.

c) **No Impact.** The project site is located within 2 miles of a public airport. The nearest airport is the Brawley Municipal Airport located approximately 1.5 miles south of the project site. However, the project site is outside of the airport compatibility zones of the Brawley Municipal Airport (County of Imperial 1996). Therefore, the proposed project would not expose people residing or working in the project area to excess noise levels and 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) **Less than Significant Impact.** Development of housing is not proposed as part of the proposed project. No full-time employees are required to operate the proposed project since the project facility will be monitored remotely. However, 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 and would likely come from the existing local workforce. 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. A less than significant impact is identified for this issue area.

b) **No Impact.** No housing exists within the project site. Therefore, the proposed project would not displace any existing people or housing, which would require 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) **Potentially Significant Impact.** Fire protection and emergency medical services in the project 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. Primary access to the project site would be located off Best Avenue. A secondary emergency access road would be located in the northwest portion of the project site. All access roads and the area around the solar blocks (no greater than 500 by 500 feet) would be constructed with all-weather surface and meet the County Fire Department's standards. Points of ingress/egress would be accessed via locked gates that can be opened by any emergency responders. Although the proposed project would be designed, constructed, and operated in accordance with applicable fire protection and other environmental, health, and safety requirements (e.g., CPUC safety standards), the project applicant will be required to consult with the Fire Department to address any fire safety and service concerns (i.e, battery energy storage system) so that adequate service is maintained. The project's potentially significant impacts on fire services will be addressed in the EIR.

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 and the increase in construction related traffic could increase demand on law enforcement services. Therefore, on-site security systems would be provided and access would be limited to the areas surrounding the project site during construction and operation, thereby minimizing the need for police surveillance. Six-foot high chain link fencing topped with barbed wire would be installed around the perimeter of the project site at the commencement of construction and site access would be limited to authorized site workers. Points of ingress/egress would be accessed via locked gates. In addition, a motion detection system and closed-circuit camera system may also be installed.

The site would be remotely monitored 24 hours per day, 7 days per week. In addition, routine unscheduled security rounds may be made by the security team monitoring the site security. Based on these considerations, the proposed project would not result in a need for police protection facility expansion and a less than significant impact is identified for this issue area.

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. Additionally, 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. Therefore, no impact is identified for this issue area and no further analysis is warranted.

aiv) **No Impact.** Although maintenance of the project facility will require minimal site presence to perform periodic visual inspections and minor repairs, no full-time employees are required to operate the proposed project because the project facility will be monitored remotely. Therefore, substantial permanent increases in population that would adversely affect local parks is not expected. No impact is identified for this issue area and no further analysis is warranted.

av) **No Impact.** Although maintenance of the project facility will require minimal site presence to perform periodic visual inspections and minor repairs, no full-time employees are required to operate the proposed project because the project facility will be monitored remotely. Therefore, substantial permanent increases in population that would adversely affect libraries and other public facilities (such as post offices) is not expected. The proposed project is not expected to have an impact on other public facilities such as post offices, and libraries. No impact is identified for this issue area and no further analysis 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 proposed project would not generate new employment on a long-term basis. As such, the proposed 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 proposed project would not include or require the expansion of recreational facilities. No impact is identified for this issue area and no further analysis is warranted.

b) **No Impact.** Refer to response XVI. 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.** Operation and maintenance would be conducted remotely, with minimal trips to the project site for panel washing and other solar maintenance. Construction of the proposed project would result in a small increase of traffic to the area, which may result in a potentially significant impact. Therefore, a traffic study will be prepared and this issue area will be addressed in the EIR.

b) **Potentially Significant Impact.** Section 15064.3(b) of the CEQA Guidelines provides guidance on determining the significance of transportation impacts and focuses on the use of vehicle miles traveled (VMT), which is defined as the amount and distance of automobile travel associated with a project. Given the nature of the project, after construction, there would be a nominal amount of vehicle trips generated by the project. Once the proposed project is implemented, the proposed project would require intermittent maintenance requiring a negligible amount of traffic trips on an annual basis. However minimal, the proposed project would increase the number of vehicular trips related to construction and the need for intermittent maintenance on an annual basis. Therefore, this issue is potentially significant and will be addressed in the traffic study and EIR analysis.

c) **Less than Significant Impact.** To accommodate emergency access, PV panels would be spaced to maintain proper clearance. Proposed project facilities would be designed, constructed, and operated in accordance with applicable fire protection, CPUC safety standards, and other environmental, health, and safety requirements. Primary access to the project site would be located off Best Avenue. All access roads and the area around the solar blocks (no greater than 500 by 500 feet) would be constructed with all-weather surface and meet the County Fire Department's standards. Points of ingress/egress would be accessed via locked gates that can be opened by any emergency responders. Additionally, the project site is split vertically by the existing Union Pacific Railway and already contains an existing roadway off of Best Avenue that traverses across the railroad at-grade. This at-grade crossing would be maintained for access between the eastern and western portions of the project site. Therefore, the proposed project would not increase hazards because of incompatible uses or design features, and impacts are considered less than significant. A

haul truck route study will be required which will determine the appropriate construction route.

d) **Less than Significant Impact.** As previously stated, the PV panels would be spaced to maintain proper clearance. Proposed project facilities would be designed in accordance with applicable fire protection, CPUC safety standards, and other environmental, health, and safety requirements. Primary access to the project site would be located off Best Avenue. A secondary emergency access road would be located in the northwest portion of the project site. All access roads and the area around the solar blocks (no greater than 500 by 500 feet) would be constructed with all-weather surface and meet the County Fire Department's standards. Points of ingress/egress would be accessed via locked gates that can be opened by any emergency responders. 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.** AB 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.

In accordance with AB 52, Imperial County, as the CEQA lead agency, sent an AB 52 consultation request letter to the Torrez Martinez Desert Cahuilla Indians and Quechan Indian Tribe on July 20, 2021. 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) **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. Water for construction and operation of the project would be obtained from an existing ground storage tank on-site which is filled by the Best Canal. The proposed project would not require the relocation, expansion, or construction of 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 and exceed the capacity of existing or planned stormwater drainage systems. 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 wastewater generated during construction would be contained within portable toilet facilities and disposed of at an approved site. The minimal volume of wastewater generated

during construction would not require the relocation expansion, or construction of wastewater treatment facilities.

Further, no habitable structures (e.g. housing or O&M buildings) are proposed on the project site. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded electric power or natural gas.

New telecommunications equipment would be installed at the project substation within the unmanned Mechanical and Electrical Equipment Room. The proposed fiber optic telecommunications cable, once past the POI, would utilize existing transmission lines to connect to the North Brawley substation. The length of this proposed fiber optic telecommunications cable route would be approximately 1.8 miles. Alternatively, a microwave tower 40 to 100-feet tall could replace the need for a fiberoptic line to transmit data offsite. If selected, this microwave tower would be located within the project substation footprint. The project's potential impact on the construction of new telecommunication facilities will be addressed in the EIR.

Once fully constructed, 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. Although water for solar panel washing and fire protection during project operation is not anticipated to result in a significant increase in water demand/use, the proposed project's potential impacts on water supplies will be addressed in the water supply assessment and EIR analysis.

b) **Potentially Significant Impact.** Refer to response XIX. a) above.

c) **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. Further, no habitable structures (e.g. housing or O&M buildings) are proposed on the project site; therefore, there would be no wastewater generation from the proposed project during operation. The proposed project would not exceed wastewater treatment requirements of the RWQCB. Therefore, a less than significant impact is identified for this issue area.

d) **Less than Significant Impact.** Solid waste generation would be minor for the construction and operation of the proposed 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 Imperial Landfill (13-AA-0019) located approximately 11 miles south of the proposed project in Imperial. The Imperial Landfill has approximately 12,384,000 cubic yards of remaining capacity and is estimated to remain in operation through 2040 (CalRecycle 2021). Therefore, there is ample landfill capacity in the County to receive the minor amount of solid waste generated by construction and operation of the proposed project.

Additionally, because the proposed project would generate solid waste during construction and operation, they 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 Reuse and Recycling Access Act of 1991. Also, conditions of the conditional use permit will contain provisions for recycling and diversion of Imperial County construction waste policies. Therefore, 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 Fire Hazard Severity Zone Viewer provided by the California Department of Forestry and Fire Protection, the proposed project 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 2020). 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 proposed project 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 2020). Therefore, the proposed project would not exacerbate wildfire risks. No impact is identified for this issue area.

c) **Less than Significant Impact.** Fire protection and emergency medical services in the area are provided by the Imperial County Fire Department. The proposed project 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 2020). Further, the proposed project is located in an unincorporated area of Imperial County, which has a generally low potential for a major fire (County of Imperial 2016).

The project involves the installation of solar PV panels, an on-site substation, BESS, inverters, transformers, and a 1.8-mile-long aboveground 92 kV gen-tie line. To accommodate emergency access, PV panels would be spaced to maintain proper clearance.

Proposed project facilities would be designed, constructed, and operated in accordance with applicable fire protection, CPUC safety standards, and other environmental, health, and safety requirements. Primary access roads would be located off Best Avenue from the east and would be constructed with an all-weather surface, to meet the County Fire Department's standards. Points of ingress/egress would be accessed via locked gates that can be opened by any emergency responders. The existing east to west roadway that traverses over the existing railroad and connects the two halves of the project site would be maintained. This would serve as a secondary emergency access road. Further, water for emergency fire suppression would likely be provided by water trucks during construction and the existing ground storage tank on-site which is filled by the Best Canal during operation. Therefore, operation and maintenance would not affect the ability of fire personnel to respond to fires or exacerbate fire risk and would continue to be adequately supported by the existing fire protection services. A less than significant impact is identified for this issue area.

d) **No Impact.** The proposed project 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 2020). Additionally, 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 and no further analysis is warranted.

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, agricultural resources, air quality, biological resources, cultural resources, geology/soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use/planning, public services, transportation, tribal cultural resources, and utilities/service systems. 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, geology/soils and GHG. These potential environmental effects could cause substantial adverse effects on human beings. These issues will be further evaluated in the EIR.

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List of Preparers

This Initial Study was prepared for the Imperial County Planning and Development Services Department by HDR at 591 Camino de la Reina, Suite 300, San Diego, CA 92108. The following professionals participated in its preparation:

Imperial County Planning and Development Services Department

Jim Minnick, Planning and Development Services Director

Michael Abraham, AICP, Assistant Planning and Development Services Director

David Black, Planner IV

HDR

Tim Gnibus, Principal

Sharyn Del Rosario, Project Manager

Elaine Lee, Environmental Planner

Ronell Santos, Biologist

Anders Burvall, Senior Geographic Information Systems Analyst

Renee Stueber, Document Production Administrator

Comment Letters Received on Notice of Preparation

NATIVE AMERICAN HERITAGE COMMISSION

July 26, 2021

David Black, Planner IV
Imperial County Planning and Development Services Department
801 Main Street
El Centro, CA 92243

Re: 2021070424, GPA# 21-0003, ZC 21-0003, CUP #20-0030 & WSA (BRAWLEY SOLAR ENERGY PROJECT) ORNI 30 Project, Imperial County

Dear Mr. Black:

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.

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

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
Cultural Resources Analyst

cc: State Clearinghouse

AUGUST 17, 2021

VIA EMAIL: DAVIDBLACK@CO.IMPERIAL.CA.US
David Black
Imperial County Planning and Development Services Department
801 Main Street
El Centro, CA 92243

Dear Mr. Black:

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE BRAWLEY SOLAR ENERTY FACILITY PROJECT, SCH# 2021070424

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the Brawley Solar Energy Facility Project (Project). The Division monitors farmland conversion on a statewide basis, provides technical assistance regarding the Williamson Act, and administers various agricultural land conservation programs. We offer the following comments and recommendations with respect to the project's potential impacts on agricultural land and resources.

Project Description

The project applicant proposes to construct and operate a 40 megawatt (MW) photovoltaic (PV) solar facility with an integrated 40 MW battery storage system (BESS) (not to exceed 80 MW) on approximately 227 acres of privately-owned land. The proposed project would be comprised of bifacial solar PV arrays panels, an on-site substation, BESS, fiberoptic line or microwave tower, inverters, transformers, underground electrical cables and access roads. The proposed project would connect to the existing North Brawley Geothermal Power Plant substation located southwest of the project site via an approximately 1.8-mile long aboveground 92 kilovolt generation tie line.

The site is approximately one mile north of the City of Brawley's jurisdictional limit, south of Baughman Road, west of Best Road, and north of Andre Road. The City of Brawley Wastewater Treatment Plant is located along the western edge of the project site.

The project site contains Prime Farmland, and Farmland of Statewide Importance as designated by the Department of Conservation's Farmland Mapping and Monitoring Program.[1]

Department Comments

Although conversion of agricultural land is often an unavoidable impact under CEQA analysis, feasible alternatives and/or feasible mitigation measures must be considered. In some cases, the argument is made that mitigation cannot reduce impacts to below the level of significance because agricultural land will still be converted by the project, and therefore, mitigation is not required. However, reduction to a level below significance is not a criterion for mitigation under CEQA. Rather, the criterion is feasible mitigation that lessens a project's impacts. As stated in CEQA statue, mitigation may also include, "Compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements."[2]

The conversion of agricultural land represents a permanent reduction in the State's agricultural land resources. As such, the Department advises the use of permanent agricultural conservation easements on land of at least equal quality and size as partial compensation for the loss of agricultural land. Conservation easements are an available mitigation tool and considered a standard practice in many areas of the State. The Department highlights conservation easements because of their acceptance and use by lead agencies as an appropriate mitigation measure under CEQA and because it follows an established rationale similar to that of wildlife habitat mitigation.

Mitigation via agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of easements or the donation of mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance. Hence, the search for replacement lands should not be limited strictly to lands within the project's surrounding area.

[1] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, https://maps.conservation.ca.gov/DLRP/CIFF/

[2] Public Resources Code Section 15370, Association of Environmental Professionals, 2020 CEQA, California Environmental Quality Act, Statute & Guidelines, page 284, https://www.califaep.org/docs/2020_ceqa_book.pdf

A source that has proven helpful for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at:

http://www.calandtrusts.org/resources/conserving-californias-harvest/

Of course, the use of conservation easements is only one form of mitigation that should be considered. Any other feasible mitigation measures should also be considered

The Department recommends further discussion of the following issues:

- Type, amount, and location of farmland conversion resulting directly and indirectly from implementation of the proposed project.
- Impacts on any current and future agricultural operations in the vicinity; e.g., land-use conflicts, increases in land values and taxes, loss of agricultural support infrastructure such as processing facilities, etc.
- Incremental impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely future projects.
- Proposed mitigation measures for all impacted agricultural lands within the proposed project area.

Conclusion

Thank you for giving us the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Report for the Brawley Solar Energy Facility Project. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Associate Environmental Planner via email at Farl.Grundy@conservation.ca.gov.

Sincerely,

Monique Wilber

Monique Wilber

Conservation Program Support Supervisor

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

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

AIR POLLUTION CONTROL DISTRICT

August 24, 2021

Jim Minnick, Director
Imperial County Planning & Development Services
801 Main Street
El Centro, CA 92243

SUBJECT: Notice of Preparation of a Draft Environmental Impact Report for Brawley Solar Energy Facility Project

Dear Mr. Minnick:

The Imperial County Air Pollution Control District (Air District) received your notice and has the following general comments on the scope of the review for the Brawley Solar Energy Facility Project (Project). As you know, the Air District's established programs help to keep the quality of air in Imperial County from declining. The programs, Rules and Regulations of the Air District in conjunction with the California Environmental Quality Act (CEQA), the most current CEQA Air Quality Handbook for Imperial County (CEQA Handbook), and the Air District's State Implementation Plans (SIP's) for Ozone, $PM_{2.5}$ and PM_{10} work together to assure that air quality improves or does not degrade. Currently, the non-attainment status of "moderate" for ozone, "moderate" for $PM_{2.5}$ and the maintenance requirements for PM_{10} are the driving criteria in establishing the thresholds for NOx, ROG, PM_{10}, SOx and CO found in the CEQA Handbook. These thresholds and their significance are explained under Section 6 of the CEQA handbook, which describes the preparation of an Air Quality Analysis for an Environmental Impact Report (EIR) for nonrenewable projects. The Air District will look closely at the potential impacts, both direct and indirect, as a result of the proposed project.

When exploring the impacts of renewable projects, it is a common misconception that these types of projects are not a significant source of air pollution. While it is true that renewable projects that do not employ fuel based combustion units as supplemental power are typically cleaner projects during their operational phases, in most cases construction and cumulative impacts have the potential to cause adverse air quality impacts. Specifically, PM10 and NOx emissions are the

primary pollutants of concern during the construction and operational phases of these types of renewable projects. Historical experience has demonstrated that shortened construction periods not previously analyzed during the CEQA process creates a potential for elevated levels of NOx emissions, as well as elevated levels of PM10 during earthmoving activities. For your convenience below are highlights of the elements involved in an **Air Quality Analysis**.

A thorough analysis should include a description, impacts and health consequences of all air quality and emissions. The analysis should be conducted using APCD approved modeling factors.[1] The analysis should include short and long term emissions as well as daily and yearly emission calculations. Project alternatives should be included along with a thorough emissions analysis. A description of the County's attainment status, both at the state and federal levels, as well as any regulatory restrictions to the project, should be included. All temporary construction and grading impacts should quantify fugitive dust and combustion emissions and propose mitigation measures.

Therefore, a **Tier I Preliminary Analysis** should be performed in order to assess the level of significance of potential impacts. This analysis should include an overview containing a complete description of the Project (including the proposed Battery Energy Storage System component) in its current existing conditions, what the proposed development will be, how that will change the existing conditions, and should also provide answers to the questions in the **White Paper** (attached for your reference). These questions are designed to assess the project's level of significance before and after proposed mitigation. Compliance with **Regulation VIII** is required for all construction activities, including a **Construction Dust control Plan (CDCP)**, as well as **notification 10 days prior** to the commencement of all construction activities.

In order to identify NO_x emissions created during the construction phase of the renewable project, a **Construction Equipment List** detailing the equipment type, make, model, year, horsepower, hours of **daily** operation, date arrived onsite, and date removed from site should be provided to the Air District in Excel format.[2] This is to ensure NO_x emissions during the construction period remain under the CEQA thresholds of significance.

---

[1] Such as using the most current CalEEMod.

[2] The Equipment List submittal will require a written commitment by the applicant to a submittal schedule agreed upon between the applicant and the Air District

In regards to cumulative impacts, which occur during the operational phase of renewable projects, PM_{10} is of main concern. Therefore, an **Operational Dust Control Plan (ODCP)** is required detailing how dust emissions will be controlled and maintained during the operational phase of the project.[3] An initial site visit is required to confirm the elements of any draft ODCP before it can be finalized by the Air District. After this, continual site visits will typically occur on a yearly basis. Please note that an ODCP is intended to provide pertinent information specific to your operation for the reduction of fugitive dust emissions created by the ongoing operations at your facility.

Our rules and regulations can be found on our website at https://apcd.imperialcounty.org under the Rules & Regulations. If any questions arise, please feel free to contact our office at (442) 265-1800.

Sincerely,

Curtis Blondell
Environmental Coordinator

Reviewed by,
Monica Soucier
APC Division Manager

[3] The ODCP needs to be approved prior to the issuance of the Certificate of Occupancy.

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August 30, 2021

Mr. David Black
Planner IV
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: NOP of a DEIR for the Brawley Solar Energy Facility Project

Dear Mr. Black:

On July, 2021, the Imperial Irrigation District received from the Imperial County Planning & Development Services Department, a Notice of Preparation of a Draft Environmental Impact Report for the Brawley Solar Energy Facility Project. The applicant, ORNI 30, LLC, is proposing to construct and operate a 40 MW PV solar facility with an integrated 40 MW battery energy storage system, on approximately 227 acres of privately-owned land located about one mile north from the City of Brawley's jurisdictional limit in the unincorporated area of Imperial County, CA (APNs 037-140-006, -020, -021, -022, and -023), south of Baughman Road, west of Best Road, and north of Andre Road. The Union Pacific Railway transects the project site and the City of Brawley Wastewater Treatment Plant is located along the western edge of the project site. The project would be comprised of bifacial solar PV arrays panels, an on-site substation, BESS, fiber optic line or microwave tower, inverters, transformers, underground electrical cables and access roads. The project would connect to the existing North Brawley Geothermal Power Plant substation located southwest of the project site via an approximately 1.8-mile long aboveground 92 kV generation tie line.

The Imperial Irrigation District has reviewed the information and has the following comments:

1. If the project requires temporary construction or permanent electrical service at the distribution level, the applicant should be advised to contact Gabriel Ramirez, IID Customer Project Development Planner, at (760) 482-3300, (760) 482-9257 or e-mail Mr. Ramirez at gramirez@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 submit a complete set of plans approved by the County of Imperial (in hardcopy and AutoCad formats) including site plan, plan & profile drawings, one-line diagrams, and electrical loads, panel size, voltage requirements, project schedule, estimated in-service date and and the project's Conditional Use Permit, in addition to the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project. The applicant shall be responsible for all costs and mitigation measures related to providing electrical service to the project.

2. Distribution-rated electrical service is limited in the area. A circuit study may be required. Any improvements or mitigation identified in the circuit study to enable the provision of electrical service shall be the financial responsibility of the applicant.

3. IID water facilities that may be impacted include Best Canal, Best Lateral 1, Livesley Drain, and Best Drain. The applicant may not use IID's canal or drain banks to access the project site. Any abandonment of easements or facilities shall be approved by IID based on systems (Irrigation, Drainage, Power, etc.) needs.

4. To insure there are no impacts to IID facilities, applicant should submit project plans, including grading & drainage and fencing plans, to IID Water Department Engineering Services for review and comment prior to final project design and CUP approval. IID WDES can be contacted at (760) 339-9265 for further information on this matter.

5. The project may impact IID drains with project site runoff flows draining into IID drains. To mitigate impacts, the project may require a comprehensive IID hydraulic drainage system analysis. IID's hydraulic drainage system analysis includes an associated drain impact fee.

6. A construction storm water permit from the California Regional Water Quality Control Board is required before commencing construction and an industrial storm water permit from CRWQCB is required for the operation of the proposed facility. The project's Storm Water Pollution Prevention Plan and storm water permits from CRWQCB should be submitted to IID for review.

7. For information on procuring construction water, the applicant should contact IID North End Division at (760) 482-9900.

8. The impacts to the Salton Sea, due to loss or reduction of agricultural runoff caused by agricultural land conversion to urban use shall require discussion in the EIR. Due to the potential loss or reduction of inflow to the Salton Sea and to IID drains with its concurrent environmental impacts, the applicant should address this issue as well as provide analysis that the project does not negatively impact the IID Water Conservation and Transfer Draft Habitat Conservation Plan, the existing Section 7 Biological Opinion and the California Endangered Species Act Permit 2081.

9. An assessment or discussion of cumulative impacts considering other non-agricultural facilities whose water use (or potential water use) would reduce the inflow conveyed to IID drains and the Salton Sea is necessary. It is advisable that the applicant present a cumulative impact analysis on inflow to IID drains and the Salton Sea.

   The documents mentioned previously are available at:

   - The HCP is part of the IID Water Conservation and Transfer Project, Final EIR/EIS and can be found at Water/Library/QSA-Water-Transfer/Environmenta-Assessment/Permits/Final EIREIS; Volume II, Appendix A Species Covered by the HCP. The HCP in the Draft EIR/EIS may contain small changes from the final version of the EIR/EIS. It is in a different appendix in the draft that the final

EIR/EIS (Appendix C). Until the final HCP/Natural Community Conservation Plan is approved, IID uses the draft HCP in the draft document, which can be accessed at Water/Library/QSA-Water-Transfer/Environmental-Assessment).

- The Biological Opinion (federal ESA permit) is at https://www.iid.com/Imperial-Irrigation-District/Salton-Sea-Areas.
- The CESA 2081 (the water transfer operates under this state ESA permit until the NCCP is approved) can be found at https://www.iid.com/water/library/qsa-water-transfer/environmental-assessments-permits/cesa-compliance.
- The MMRP (Mitigation Monitoring and Report Program) is at https://www.iid.com/Water/Library/QSA-Water-Transfer/Mitigation.

10. In order to obtain a water supply from IID for a non-agricultural project, the project proponent will be required to comply with all applicable IID policies and regulations and may be required to enter into a water supply agreement. Such policies and regulations require, among other things, that all potential environmental and water supply impacts of the project be adequately assessed, appropriate mitigation developed if warranted, including any necessary approval conditions adopted by the relevant land use and permitting agencies.

11. If IID implements a water allocation or apportionment program pursuant to the IID Equitable Distribution Plan, or any amending or superseding policy for the same or similar purposes, during all or any part of the term of said water supply agreement, IID shall have the right to apportion the project's water as an industrial water user. Information on how to obtain a water supply agreement can be found at the IID website https://www.iid.com/water/municipal-industrial-and-commercial-customers or by contacting Justina Gamboa-Arce, Water Resources Planner at (760) 339-9085 or jgamboaarce@iid.com.

12. 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 for its completion are available at https://www.iid.com/about-iid/department-directory/real-estate. The IID Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements.

13. 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

14. An IID encroachment permit is required to utilize existing surface-water drainpipe connections to drains and receive drainage service from the district. Surface-water drainpipe connections are to be modified in accordance with IID Water Department Standards.

15. 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, water deliveries, canals, drains, 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.
Constance Bergmark – Mgr. of Planning & Eng./Chief Elect. Engineer, Energy Dept.
Enrique De Leon – Asst. Mgr., Energy Dept., Distr., Planning, Eng. & Customer Service
Jamie Asbury – Assoc. 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.

PUBLIC COMMENTS FOR THE ENVIRONMENTAL EVALAUATION COMMITTEE MEETING

ON AUGUST 12, 2021

FOR THE PROPOSED BRAWLEY SOLAR ENERGY FACILITY PROJECT

COMMENTS SUBMITTED BY CAROLYN ALLEN FOR MYSELF & ON BEHALF OF DONNA TISDALE, AND ON BEHALF OF BOTH OF US AS MEMBERS OF BACKCOUNTRY AGAINST DUMPS (BAD) AND ALSO ON BEHALF OF DONBEE FARMS.

These comments and references are for the record.

1) We strongly oppose this large scale industrial solar project the Brawley Solar Energy Facility Project proposed by ORNI 30 LLC.The Initial Study for this project showed 36 areas with "Potentially Significant Impacts".
   All of these impacts need to fully considered and addressed .

2) Small point of use solar is a much better option than the large scale industrial solar projects like this one that wreck havoc on our farming communities.

3) We oppose the loss of farmland due to conversion to solar that this project and others like it cause. Our country's precious farm ground is finite and should be saved and protected for the future. These large solar projects cause the loss of long term agricultural jobs and create only short term temporary jobs. Large solar projects also harm the associated ag support businesses. Our Valley's Ag businesses contributes greatly to this county.This project would convert 227 acres of farmland to solar. See the article 10 Numbers That Show How Much Farmland We're Losing to Development
   https://modernfarmer.com/2018/05/10-numbers-that-show-how-much-farmland -were-losing-to-development/
   See Imperial County Agricultural Crop and Livestock Report
   https://agcom.imperialcounty.org/wp-content/uploads/2021/08/2020-Crop-Report-v2.pdf
   Also see Imperial County's Crop Report Plus for 2020

4) The project could potentially cause damage to the crops growing in the nearby fields. For example : heat island effect, excessive dust, spread of weeds ,etc.
   This is just to name a few possibilities

5) There is the possibility of Soil, Crop and air contamination from the toxic chemicals and materials used for large solar projects. See Leaching Via Weak Spots in Photovoltaic Modules" https://res.mdpi.com/d_attachment/energies/energies-14-00692/article_deploy/energies-14-00692.pdf

6) Growing crops in fields provide habitat for wildlife. This proposed project will destroy that habitat. This loss needs to be taken into consideration.

7) The plants in a growing farm field help clean our air . They take in CO2 and release oxygen. Plants sequester carbon. This benefit will be lost for the 227 acres of farmland converted to industrial use by this project

8) Project poses a threat of danger to the nearby residents and to people who use the nearby golf course. For example EMF , Dirty Electricity, etc.

9) Issues of Glint and Glare problems possible for nearby airport

10) Extreme fire hazard from the lithium ion batteries used in Battery Energy Storage Systems See Battery 'Bombs': More Giant Renewable Energy Batteries Explode in Toxic Fireballs At stopthesethings.com

11) There is a growing awareness of the huge toxic trash problem that solar panels present .What is and will happen to all of the broken, damaged, expired solar panels. Will they pollute our land and water? Pile up in our landfills.?

12) All of the cumulative, direct and indirect impacts of this project need to be taken in to consideration and addressed. The total ramifications and consequences of not just this project but all of the large scale solar projects and other Battery Energy Storage Systems need to be looked at.

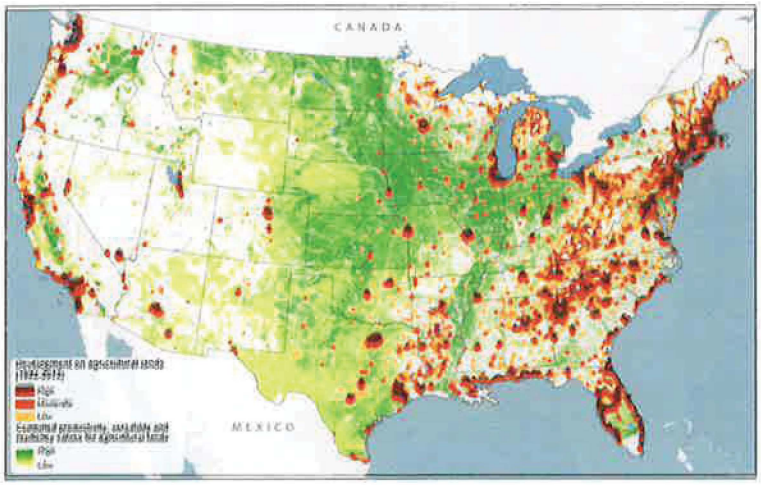
Submitted by: Carolyn Allen [redacted]

10 Numbers That Show How Much Farmland We're Losing to Development

MAY 22, 2018

Dan Nosowitz

"Farms Under Threat," a new report from the American Farmland Trust, shows the dire state of our nation's farmlands.



This image, courtesy of American Farmland Trust, shows the conversion of agricultural land to urban and low-density residential development between 1992 and 2012.

Photography AFT, Farms Under Threat

The organization's findings, which they are calling "the most comprehensive ever undertaken of America's agricultural lands," aren't hugely shocking, at least at the surface: American farmland is being vacuumed up by development. What's new, though, is the discovery that the development isn't coming only from urban areas expanding outwards = rural areas are also losing farmland rapidly. "The fact is that we have this sort of insidious development that no one's been paying attention to, and we really need to start paying attention," says Julia Freedgood, the assistant VP of programs at the AFT.

Why is this happening? There's no simple answer. One major reason, which has spiraling effects, is that farming is an incredibly difficult and not a very lucrative career path. The average age of the American farmer was nearly 60 in 2012 (the time of the last census); as those farmers retire or pass away, successive generations turn elsewhere for jobs, the land goes fallow and is sold off. Another reason: it's sometimes simply worth more to sell farmland rather than actually farm the land, especially if that farmland is near a city or town. "There's no one to take it over and it's worth more selling to developers, so why not?" That's also part of the reason it's obscenely difficult to find new land for new farmers; land access, according to the National Young Farmers Coalition, is one of the most difficult obstacles for beginning farmers.

This is concerning for a variety of reasons. The obvious one is that farmland produces food, so less farmland means the price of food may rise. The majority of American farmland is devoted to commodity crops = soy, corn, wheat = and many of the uses of those crops are not for direct eating.

POPULAR

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Jason Price

Much of it, though, is used for animal feed, and if the price of animal feed goes up, so goes the price of meat. And, of course, some of the farmland being lost is for so-called "specialty" crops, like fruits and vegetables. But there are other reasons as well. Development on farmland can have negative effects, removing land that animals use as a habitat. Well-operated farms care for the soil, air, and water, and produce viable ecosystems. Economically, the agricultural industry employs millions in all sorts of fields, from machinery to inputs to researchers to retailers to packagers.

We put together a list of some of the AFT's findings that should help to add some (scary) context.

10% of the world's arable acres lie within the United States.

Agriculture contributes **$992 billion** to the American economy each year.

31 million acres of farmland lost to development, in total, between 1992 and 2012.

That's **175 acres per hour** of agricultural land

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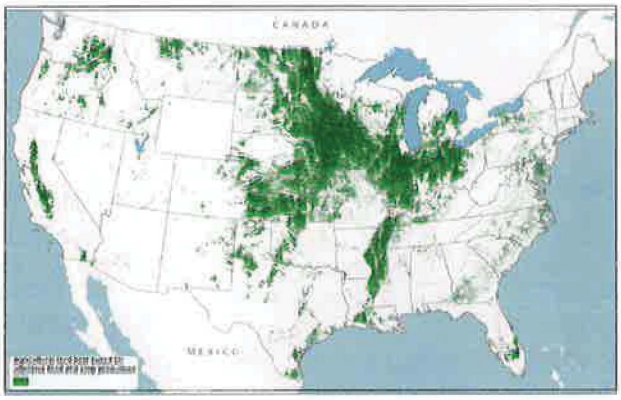
lost to development = 3 acres per minute.

It probably comes as no surprise that the expansion of cities and suburbs are responsible for most of the loss in farmland. But **41% of the lost acres actually came from development in rural areas.**

The U.S. lost **11 million acres** of America's best agricultural land = land with superior soil conditions and weather for growing food = from 1992 to 2012.



Best agricultural land for intensive food and crop production in 2012. Source: AFT, Farms Under Threat.

0.43 PVR: PVR stands for Productivity, Versatility, and Resiliency, and it's a metric the American Farmland Trust uses to rate the quality of farmland. If farmland has a rating above that = say, 0.65 = that makes it great farmland. Below that, and it's subpar. Farmland with a high rating is being lost disproportionately quickly, which means suboptimal farmland will have to be used. And suboptimal farmland requires more water, more transportation, more energy, more fertilizers, and more pesticides to be productive, all of which are bad for the environment.

Just **17% of American land is ideal for farming.** We don't have that much to lose! The amount of the best land lost is about equal to California's entire Central Valley.

62% of development between 1992 and 2012 took place on agricultural land. The other 38% was primarily forest and simply unused space.

Some types of farmland are more at risk of being swallowed by development than others. **91% of the acreage devoted to fruit trees, tree nuts, and berries are directly in the path of development** as they're located in counties that qualify as either metropolitan areas or immediately adjacent to them.

This report is the first part of a multi-year project to better understand farmland use and loss state-by-state, and to better understand the effectiveness of state farmland protection policies. Make sure to read the full, eye-opening "Farms Under Threat" report, and you can also use that link to sign up for updates on the project from the AFT.

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10 COMMENTS Most Voted

Jeff Orrell 2 years ago

This is old news folks, the hour is later than we think. Read The Unsettling of America by Wendell Berry, 1976?
What can I do? I cry everytime I see a for sale sign go up on a piece of farmland because I know what's going to happen...more developing. If people could look at the land and stop to consider what they're looking at has been there since the dawn of man. Developments are no different to me than graffiti. We're taking what is timeless and putting a permanent stamp on it.
What can I do?

14 Reply

william f neal 1 year ago

The above data proves what is happening in our nation and needs to stop

3 Reply

John Hoadley 1 year ago

I come from a long history of agricultural family of farmers, my family started farming in the late 1800's, here in the treasure Valley of Boise Idaho, I myself have been in the seed industry since 1989, and have seen the turn over of prime farm ground in treasure Valley from dirt to concrete and asphalt and fields of fertil viable productive soil to homes and business. The treasure valley is very unique as we are considered the seed meca of the world as we have some of the best growers,the best soil, control of our irrigation and environment, and... Read more »

3 Reply

Gretchen Easterberg 1 year ago

Land must be purchased in large acreage masses, and donated to land trust organizations to prevent this development. It's my dream and goal to help to raise money to both donate to land trusts, and also, non-profit organizations must also be organized for farm

land and wilderness land preservation and restoration. Then, I will need help be with this, in terms of learning fundraising skills.

2 Reply View Replies (1)

Dixie Wong 2 years ago

Wonderful article. I am a realtor. What can we do?

1 Reply View Replies (3)

Roger Hoffecker 1 year ago

There will be no farmland preservation without farmer preservation.

1 Reply

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Leaching via Weak Spots in Photovoltaic Modules

Jessica Nover [1], Renate Zapf-Gottwick [1,*], Carolin Feifel [2], Michael Koch [2] and Juergen Heinz Werner [1]

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Abstract: This study identifies unstable and soluble layers in commercial photovoltaic modules during 1.5 year long-term leaching. Our experiments cover modules from all major photovoltaic technologies containing solar cells from crystalline silicon (c-Si), amorphous silicon (a-Si), cadmium telluride (CdTe), and copper indium gallium diselenide (CIGS). These technologies cover more than 99.9% of the world market. We cut out module pieces of 5 × 5 cm^2 in size from these modules and leached them in water-based solutions with pH 4, pH 7, and pH 11, in order to simulate different environmental conditions. Unstable layers open penetration paths for water-based solutions; finally, the leaching results in delamination. In CdTe containing module pieces, the CdTe itself and the back contact are unstable and highly soluble. In CIGS containing module pieces, all of the module layers are more or less soluble. In the case of c-Si module pieces, the cells' aluminum back contact is unstable. Module pieces from a-Si technology also show a soluble back contact. Long-term leaching leads to delamination in all kinds of module pieces; delamination depends strongly on the pH value of the solutions. For low pH-values, the time dependent leaching is well described by an exponential saturation behavior and a leaching time constant. The time constant depends on the pH, as well as on accelerating conditions such as increased temperature and/or agitation. Our long-term experiments clearly demonstrate that it is possible to leach out all, or at least a large amount, of the (toxic) elements from the photovoltaic modules. It is therefore not sufficient to carry out experiments just over 24 h and to conclude on the stability and environmental impact of photovoltaic modules.

Keywords: leaching; long term; photovoltaic modules; delamination; solubility

Citation: Nover, J.; Zapf-Gottwick, R.; Feifel, C.; Koch, M.; Werner, J.H. Leaching via Weak Spots in Photovoltaic Modules. *Energies* **2021**, *14*, 692. https://doi.org/10.3390/en14030692

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Published: 29 January 2021

1. Introduction

Photovoltaic (PV) modules are not a niche product anymore. The market started with an installed capacity of 20 MW in the early 1990s and increased up to 635 GW of total installed PV modules worldwide at the end of 2019 [1]. By assuming an average lifetime of 30 years, we have to deal with an increasing amount of waste from PV modules of up to 1.7 million tonnes until 2030 [2].

In principle, photovoltaics are a green technology; however, some PV modules contain toxic elements such as lead in the solder ribbons and metalization pastes, or even worse, such as in CdTe technology, the toxic elements Cd and Te in the photoactive layer itself. Many modules using copper indium gallium diselenide (CIGS) also contain cadmium in the so-called CdS buffer layer of the CIGS cells. This situation is mainly possible because PV modules are still excluded from the EU Directive on the restriction of hazardous substances (ROHS 2) in electrical and electronic equipment. This exclusion will remain until the next review of the RoHS 2, which is planned for 2021 [3]. For all other electric and electronic equipment (EEE) on the EU market, the tolerated maximum concentrations by weight in homogeneous materials for lead (Pb) and cadmium (Cd) are 0.1% and 0.01%, respectively. Clearly, in the case of the compounds CdS or CdTe, with 50% of the mass being Cd,

the RoHS is not obeyed. However, also the technology of modules with crystalline Si cells has a problem with RoHS, although it could easily be overcome by using cell connectors without lead (usually, the solder contains about 40% lead) in the solder. The tiny amount of Pb in the metallization pastes could be kept below the RoHS limits. In 2019, the amount of lead-free metalization pastes in the case of silicon (Si) solar cells was only 30% [ ]. At the same time, the world market share of lead-containing solder for cell connectors was over 90% [ ].

Most probably, photovoltaic modules, which contain toxic substances, are safe for the users and the environment, at least as long as the modules are not damaged. Nevertheless, what happens if modules are damaged? What happens at the end of their use? Are they "donated" or "exported" like old cars, other old electronic equipment, and waste to countries outside the EU? In the worst case, finally, wherever it may be, the modules are crushed and/or discarded in landfills. What could happen with the toxic elements? In fact, it is no longer a question if these substances are released into in the environment: several studies proved they do and that the release depends on the pH-value of the leaching solvents, as well as on the redox conditions [–]. A literature review can be found in [ ].

Despite of all these studies [–], several questions are open: How are the toxic substances released? What are the weak spots in the modules? Does leaching only occur in the case of delaminated modules, i.e., in modules, that have lost the front glass? In this case, in particular for thin film modules, it would be understandable that the toxic substances are leached from, for example, the CdTe layers, which are no longer protected by the front glass. Does it work the other way around: Are the thin layers leached from the edges of the module (pieces) leading, finally, to delamination? Clearly, after delamination, the leaching would then be accelerated even more, because the leaching solution is now able to attack the thin layers not only from the edges, but also from the surface. Are there any potentially accelerating parameters, like agitation or temperature, regarding the leaching?

The present contribution gives answers to most of these questions via a long-term study. In contrast to previous work, our leaching tests are not only conducted over 24 h as requested by standard leaching tests [–], but for more than 1.5 year; some of our results are even taken after almost two years. Furthermore, we analyze not only eluted amounts of toxic substances like cadmium (Cd) and lead (Pb), but also other elements present in the module layers such as zinc (Zn), tellurium (Te), indium (In), gallium (Ga), selenium (Se), aluminum (Al), molybdenum (Mo), and copper (Cu), to identify soluble and, therefore, weak layers in PV modules. Parts of the experimental details were published earlier in German [ ]; some results about the leaching of Cd, Te, and Pb up to day 360 were published earlier by us [ ]. We find, that, finally, the modules delaminate because of the leaching from the edges of the module pieces. In all kinds of modules, at least one of the layers of the different cell types represents a weak path for the leaching. In the case of CdTe module pieces, the CdTe layer itself and the Mo contact are soluble. In the case of CIGS module pieces, the Zn front contact, the Mo back contact, and the Cd-containing buffer layer are susceptible to strong leaching. For crystalline silicon module pieces, the Al back contact is a weak spot; for amorphous silicon (a-Si) module pieces, also the back contact (Ni) and the intermediate layer containing Zn are identified as weak spots.

Section of the present contribution describes the sample preparation and the leaching conditions and shows how we determine the total amount of elements within each type of our investigated solar modules. Section presents our leaching results. We measured for more than 1.5 years, not only at room temperature, but also at increased temperature, as well as under accelerated leaching conditions. The leaching time constant depends on the module type, as well as on the leaching conditions. Section identifies the weak spots for each particular module type. Section , finally, concludes that the amount of leached out elements after 1.5 years in some cases exceeds the value after one day by more than two orders of magnitude. Thus, leaching experiments, which are just carried out over one day, are valuable. However, statements about the stability and environmental noxiousness of photovoltaic layers are highly questionable when based on such short-term measurements.

2. Materials and Methods

2.1. Sample Preparation and Experimental Conditions

For cutting the module pieces with well-defined sizes and edges, we applied water jet cutting to get samples from the four major commercial PV technologies: crystalline silicon (c-Si), amorphous silicon (a-Si), cadmium telluride (CdTe), and copper indium gallium diselenide (CIGS). The module pieces are cut in a way that all module pieces contained at least one solder ribbon, but no parts of the frame, module boxes, or cables. The sample size of the module pieces for the leaching experiments was 5×5 cm^2.

The leaching experiments were carried out under three different conditions, in order to identify potential accelerating conditions:

- Room temperature $T_{RT} = 25\,^{\circ}$C, no agitation;
- Room temperature $T_{RT} = 25\,^{\circ}$C, with agitation (orbital shaking with rotational speed $n = 100\,\mathrm{min}^{-1}$);
- Increased temperature $T_{IT} = 40\,^{\circ}$C, with agitation (orbital shaking with rotational speed $n = 100\,\mathrm{min}^{-1}$).

For all experiments, we used high-density polyethylene (HDPE) bottles supplied with the leaching solution with a 1000 mL volume and two pieces from the very same module; see also [10]. The samples were not fixed in the bottles, and the bottles were lightproof. From earlier experiments (not presented here), we know that light accelerates leaching. However, light leads also to the production of alga, in particular for the long leaching times we are using. Alga production changes the experimental conditions and makes the leaching experiments less reproducible. Therefore, for the experiments presented here, we decided to use lightproof bottles. In order to increase the significance and validity of our experiments even more, each experiment was conducted in triplicate (this means three bottles, each one filled with two samples) for every condition. The leaching data, i.e., the concentration of a particular element in the solutions, are given as the mean value of the probes taken from the three bottles.

The leaching solutions with three different pHs covered the pH range of different environmental conditions that might occur in rain, groundwater, or waste disposal sites; their exact chemical composition and pH are shown in Table 1. All leaching solutions were base on deionized (DI) water. Over the whole 1.5 years of the experiments, the pH and the oxidation/reduction-potential E_H remained almost constant. Data for E_H, following DIN38404-6, stemmed from measurements with a platinum electrode against a silver/silver chloride reference (Ag/AgCl). The concentration of potassium chloride $c_{KCl} = 3$ mol/L was $T = 25\,^{\circ}$C; we converted the data to a potential against a standard hydrogen electrode [17].

Throughout the leaching experiments, starting after 0.5 days, we periodically took 15 mL samples from the leaching solutions in the bottles and analyzed them for the leached out elements. After taking the probe, we pored in again fresh solution of 15 mL to keep the 1000 mL volume. All data were corrected for the amount of elements that were taken out from the solution due to sampling.

Table 1. Composition of leaching solutions with pH-values of 3, 7, and 11 used in the experiments and the measured reduction potential E_H ; the same conditions as in [10]. (Copyright (2017) The Japan Society of Applied Physics, reproduced with permission).

pH	E_H (V)	Chemical Composition
3	0.62	15.4 g/L $C_6H_8O_7$, 2.8 g/L Na_2HPO_4, DI water
7	0.56	3.7 g/L KH_2PO_4, 5 g/L Na_2HPO_4, DI water
11	0.33	0.04 g/L NaOH, DI water

2.2. Heavy Metal Analysis and Determination of Initial Metal Content in Module Pieces

We characterized the samples that were taken from the leaching solutions with inductively coupled plasma mass spectrometry (ICP-MS) and give the data for the leached elements according to ISO 17294-2 [19]. This method is only able to measure dissolved substances; it cannot detect precipitations in the solution. Therefore, the elements in the precipitates were not counted as leached.

Here, we always give the amount of leached out elements as a percentage with respect to the total amount of elements that were in the original module pieces. Therefore, we had to measure the total mass of those elements in the module pieces before the experiment. For that purpose, similar module pieces as those for the experiments were milled to a powder. Then, the powder was digested by adding acid and oxidizing agents and, finally, using microwave irradiation. After that, the digested samples underwent the ICP-MS analysis, similar to our earlier experiment [...]. For each PV technology, and for all the elements analyzed, Table 2 shows their mass M_{total} that was contained in the original reference module pieces.

Table 2. Elemental mass M_{total} in the 5×5 cm^2 module pieces for crystalline silicon (c-Si), amorphous silicon (a-Si), cadmium telluride (CdTe), and copper indium gallium diselenide (CIGS). The data represent mean values and the standard deviation from three measurements.

Element	c-Si (mg)	a-Si (mg)	CdTe (mg)	CIGS (mg)
Zn		0.9 ± 0.4		16.1 ± 3.1
Cd			13.9 ± 0.9	0.2 ± 0.002
Te			15.6 ± 1.1	
In				14.1 ± 4.3
Ga				0.7 ± 0.1
Se				6.7 ± 1.3
Al	167 ± 40	196 ± 27	289 ± 63	280 ± 190
Mo			12.7 ± 1.7	5.0 ± 0.2
Cu	254 ± 15	130 ± 14	80 ± 11	146 ± 5.7
Ni		1.0 ± 0.1		
Pb	16.7 ± 0.8		2.4 ± 0.3	

2.3. Mass Balancing at the End of the Leaching Experiments

During the leaching experiments, the total mass:

$$M_{total} = M_{diss} + M_{MP} + M_{FR} \quad (1)$$

of a particular element is the sum of the following masses: the amount M_{diss} dissolved in the solution, the remaining mass M_{MP} within the module pieces, and the mass M_{FR} that precipitated in the bottles of the solution. Clearly, at the end of the leaching experiment, the total mass, determined by Equation (1) should equal the masses in Table 1. We measured the mass M_{FR} in the following way: First, the module pieces were removed from the bottles, and then, the solution was filtered using vacuum filtration with a cellulose nitrate membrane filter with a pore size of 0.45 µm. The mass M_{MP} was measured in the same way as the total mass of the elements in one module piece, as described previously. To measure the mass of the filter residue M_{FR}, we digested the filter residue together with the filter by applying a microwave enhanced oxidative digestion. Again, ICP-MS measured these samples, and the measurement of the cellulose nitrate membrane filter itself (blank value) ran in parallel. Subtracting the blank values for the filter, we calculated the amount of each element in the filter residue.

3. Results

3.1. Delamination of Module Pieces

One focus during long-term leaching in water-based solutions lies in the occurrence of delamination. In order to simulate field conditions, in a first series of experiments, we did not use any accelerating leaching parameters for the module pieces for analyzing the delamination (Figure 1a). Delamination, in this study, is defined as a separation between all kinds of module layers, not only between the encapsulation layer, often ethylene vinyl acetate (EVA) foil, and the glass. The delamination was determined by visual examination.

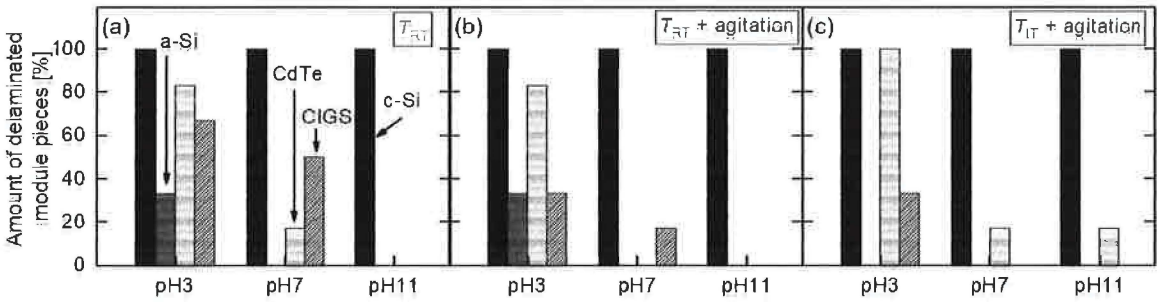

Figure 1. Amount of delaminated module pieces from crystalline silicon (c-Si), amorphous silicon (a-Si), cadmium telluride (CdTe), and copper indium gallium diselenide (CIGS) depending on the pH value of the water-based solution after 1.5 years for the three different experimental conditions: (**a**) $T_{RT} = 25\,^{\circ}C$, no agitation, (**b**) $T_{RT} = 25\,^{\circ}C$, with agitation, and (**c**) $T_{IT} = 40\,^{\circ}C$, with agitation.

After 1.5 years of leaching, we observed delamination in all kinds of PV module pieces: c-Si, a-Si, CdTe, and CIGS. The probability of delamination depends on the pH value of the solutions and the experimental conditions. In the case of c-Si module pieces, we always observed 100% delamination, independent of the pH-value, temperature, and agitation: in all aqueous solutions and for all module pieces, delamination occurred. However, in this case, delamination occurred via the EVA layer, and the type differed from the delamination type of thin film module pieces (via thin layers), as discussed later. Delamination of a-Si module pieces only happened in aqueous solutions with pH 3, and only 30% of the module pieces were affected. The agitation (Figure 1b) and also the temperature (Figure 1c) had no accelerating effect on the delamination. In fact, during the leaching experiments with $T_{IT} = 40\,^{\circ}C$ plus agitation, no delamination of a-Si module pieces was found. The highest amount of delamination in the case of CdTe module pieces occurred in acidic water-based solutions. For this type of module, the increased temperature weakly affected the delamination, as shown in Figure 1c. At room temperature, no delaminated CdTe module pieces were observed in the solutions with pH 11, whereas in neutral solutions, only 17% of the module pieces showed delamination. The pH dependence held also for the CIGS module pieces. In pH 3 solutions, the highest amount of delamination occurred with 67% of the module pieces. In pH 7 solutions, the amount of delaminated module pieces was still 50%. In alkaline solutions with pH 11, no delamination was observed with agitation or with increased temperature.

We classified all these delaminations into three different types: (i) Total separation: Here, the front side is clearly separated from the rear side. This delamination occurs in case of CdTe and a-Si module pieces. Figure 2a shows a scheme of this delamination type. (ii) Fractional separation: Here, only parts of the rear or front side are separated. The major part of the module compound is still intact. This type of delamination takes place for CIGS module pieces and for c-Si module pieces when leached in solutions with pH 11. The scheme is shown in Figure 2b. (iii) Blistering: Figure 2c shows this third type of delamination. Blistering occurs between either the front glass and the EVA foil, or between the EVA foil and the solar cell, but there is no complete separation. This type only occurs in c-Si module pieces.

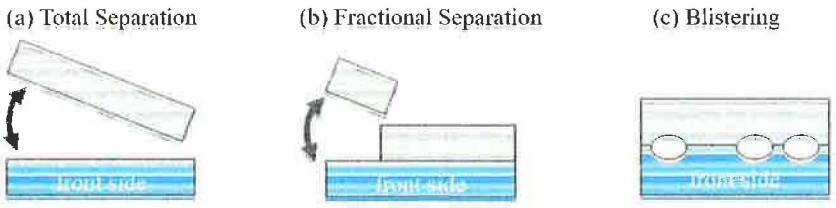

Figure 2. Different types of delamination during the leaching process: (**a**) Total separation (observed for CdTe and a-Si module pieces). The front side is completely separated from the rear side. (**b**) Fractional separation (observed for CIGS and c-Si module pieces). Only small parts of the rear side are separated; the major part of the module structure is still intact. (**c**) Blistering (only observed for c-Si module pieces). Bubble formation emerges locally on the front side of c-Si module pieces, either between glass and EVA or between EVA and solar cell depending on the pH. In this case, no separation occurs between the front and the rear side.

Total separation: Figure 3a–d shows photographs of the front and the rear side of a 5 × 5 cm^2 CdTe module piece before and after 1.5 years of leaching. Before leaching the CdTe module piece, the integrated series connection of the cells is visible (see the horizontal lines) on the front side (Figure 3a) and also on the rear side (Figure 3b). On the rear side, one sees also the solder ribbon. Only the rear side glass of the module piece shows cracks caused by the water jet cutting. The breakage pattern of this glass indicates that heat-strengthened glass is used as the rear side glass. Figure 3c,d shows the front and the rear side of a CdTe module piece after the leaching process of 1.5 years in solutions with pH 3. Apart from a few parts, the module material disappeared completely. The solder ribbon is still attached to the rear side glass by an insulating tape. After this long-term leaching, the front and the rear side glasses are no longer connected to each other, but totally separated. For a-Si module pieces, the same type of delamination is observed.

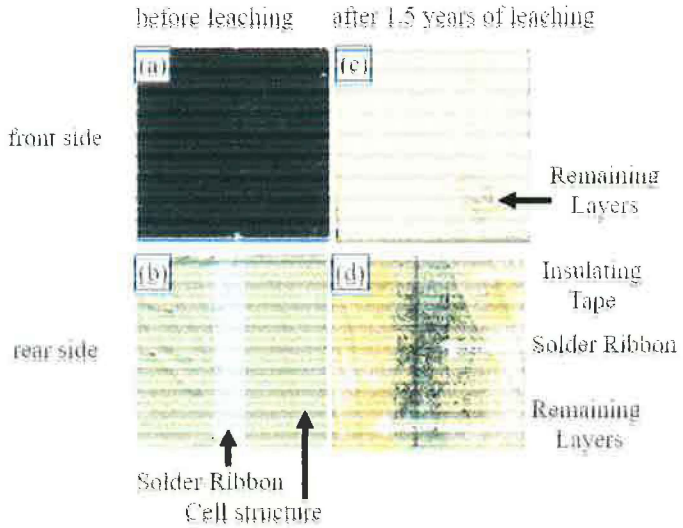

Figure 3. Photographs of (**a**) the front and (**b**) the rear side of a 5 × 5 cm^2 CdTe module piece before leaching. On the rear side, the solder ribbon and the interconnection of cells are visible. (**c**) Front side of the module piece after leaching over 1.5 years in solutions with pH 3. Apart from a few visible remaining parts, the module material disappeared. (**d**) Rear side of the module piece after the leaching. The solder ribbon with the insulating tape is visible and also some parts of remaining layers. After 1.5 years of leaching, the front and the rear side glasses are no longer attached to each other; total separation occurs.

Fractional separation: Figure 4a–d shows photographs of the front and the rear side of a 5 × 5 cm^2 CIGS module piece before and after 1.5 years of leaching: parts of the rear side are separated. Both glasses, the front and the rear side glass, show cracks due to the water jet cutting. Figure 4c shows a photograph of the front side after 1.5 years of leaching in solutions with pH 3. From the front side, a few transparent spots around the edges are visible. From a more detailed look at the back side of the module piece (Figure 4d), it becomes clear that at the transparent spots, parts of the rear side glass are missing, together with the back contact and the active module layers. Therefore, only the transparent front glass remains.

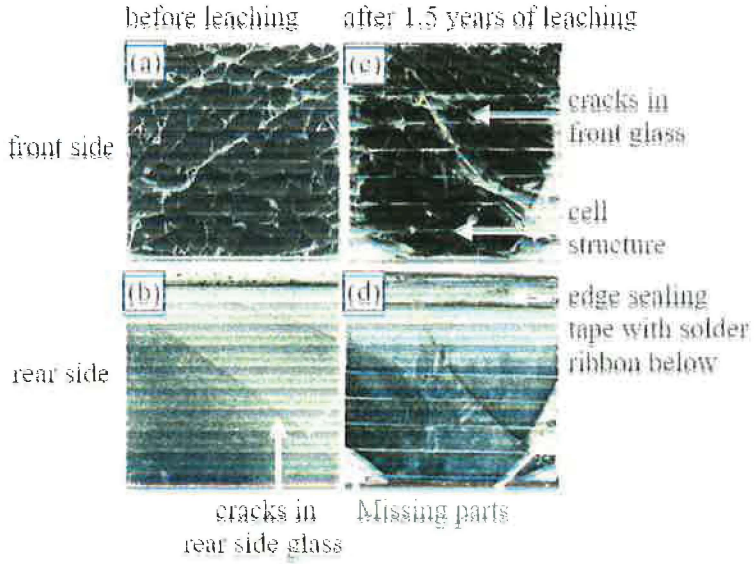

Figure 4. Photographs of (**a**) the front and (**b**) the rear side of a 5 × 5 cm^2 CIGS module piece before leaching. On the rear side, the edge sealing tape with the solder ribbon below is visible. In the front glass, as well as in the rear side glass, cracks are recognizable; they stem from the water jet cutting. (**c**) Front side after leaching for 1.5 years in pH 3 solution. (**d**) Rear side after leaching. Parts of the rear glass are missing, together with the back contact and the active layers. Only the transparent front glass remains.

Blistering: Figure 5a shows a photograph of a c-Si module piece of 5 × 5 cm^2 in size after 1.5 years of leaching in pH 3 solution. In this case, local bubble formation takes place between the solar cell and the EVA foil, especially around the solder ribbon, but no total separation is observed. In solutions with pH 11, delamination between the EVA foil and the front glass appears across extended areas (Figure 5b). A few parts of the glass are separated, and the exposed EVA foil with the solar cell below remains. Due to delamination, the textured structure of the front glass becomes visible. The breakage pattern of the glass matches the pattern known for tempered glass. The rear side of the c-Si module pieces (white backsheet) shows no changes caused by leaching. Only for this PV technology, the occurrence of delamination, i.e., blistering, does not depend on the pH value of the leaching solution. Module pieces leached in pH 7 solutions also show blistering. Blistering takes place at both locations: between the solar cell and the EVA foil, as well as between the EVA foil and the front glass.

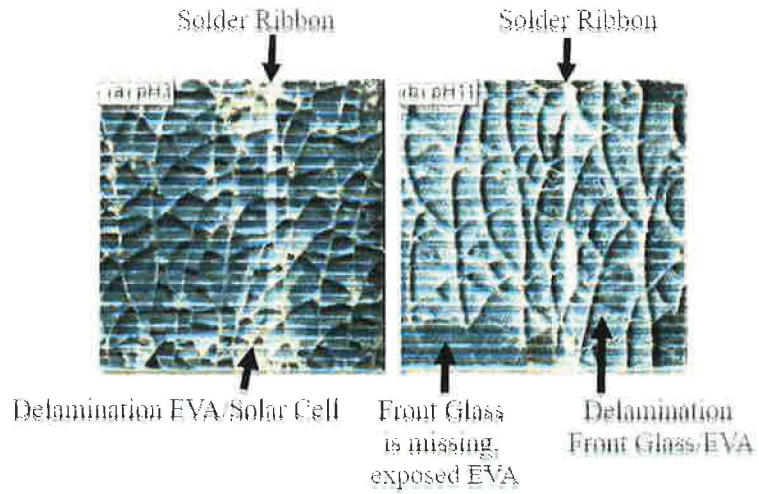

Figure 5. Photographs of c-Si module pieces with 5 × 5 cm^2 after 1.5 years of leaching in solutions with (**a**) pH 3 and (**b**) pH 11. In solutions with pH 3, a local bubble formation occurs between the solar cell and the EVA foil, preferably around the solder ribbon. In solutions with pH 11, a delamination between the EVA foil and the front glass appears across extended areas. A few parts of the glass are separated, and the exposed EVA foil with the solar cell below remains.

3.2. Leaching Results

The previous figures, as well as our previous experiments on milled module pieces [6] give the proof for severe leaching for all module technologies. In the following, we present detailed results on the elements that were leached out from module pieces of 5 × 5 cm^2 in size. In a first publication [10], we presented preliminary leaching data for Cd, Te, and Pb only and until Day 360, i.e., about one year. In contrast, here, we extend our study to 1.5 years and include many more other elements. This gives us the chance to identify possible weak spots and the leaching paths in the modules. In detail, we measure the amount of the following elements in our water-based solutions of Table 1 with different pH-values: Zn, Te, In, Ga, Se, Al, Mo, Cu, Cd, and Pb. The non-toxic element Si, which is contained in the modules' cells from crystalline, as well as from amorphous silicon, is not measured, simply because the module glass itself also contains high amounts of Si. Our measurement conducted by ICP-MS cannot distinguish between Si from the cells and from the glass of the modules.

3.2.1. CdTe Module Pieces

Figure 4a shows the common structure of a CdTe module including the front glass and front contact (usually tin oxide (SnO_2)), the buffer layer cadmium sulfide (CdS), the photoactive layer CdTe, the Mo back contact, the encapsulant EVA, and finally, the rear side glass. The typical thickness of each layer is also given [19–21]. CdTe modules are mostly fabricated in a superstrate configuration: the production process starts with the front glass, on which the transparent front contact SnO_2 is deposited. We used commercial CdTe-modules for the preparation of the module pieces and measured the amount of eluted elements with the above discussed ICP-MS method. Therefore, we are not able to distinguish between the Cd from the CdS buffer layer and the Cd from the photoactive CdTe film.

Figure 4b–d shows the time-dependent leaching of the elements Cd, Te, and Mo in water-based solutions with pH 3, pH 7, and pH 11; see also [10] for the leaching results of Cd and Te until Day 360. These results stemmed from experiments at T_{RT} = 25 °C without agitation. In all solutions, the amount of leached elements increases with time, but with different leaching rates for different pHs of the solutions. At the early beginning of leaching, Mo from the back contact leaches out with the highest amount, followed by Cd.

The leaching results in Figure 6b–d clearly demonstrate an enormous difference between the leaching concentrations after one day and after the 1.5 years. For example, the Cd-elution in pH 3 at the end of the experiment reaches almost 100%, whereas it is only about 1 % after one day. For pH 3 and pH 7, the eluted concentrations increase approximately linearly with time: a one order of magnitude increase (on the log-scale) of the time leads to a one order of magnitude higher concentration (on the log scale) of the concentration. For pH 11, the data approach a square root dependence with time: it needs a two orders of magnitude increase on the time scale for a one order of magnitude increase on the concentration scale.

Figure 7 shows the ratio $R_{Cd:Te}$ of dissolved Cd to dissolved Te from leaching CdTe module pieces in solutions with pH 3, pH 7, and pH 11. For leaching solutions with pH 3, the value of $R_{Cd:Te}$ is not constant over the leaching time. At the beginning of leaching, $R_{Cd:Te}$ is highest with 35:1, but with time, it approaches $R_{Cd:Te} \approx 1$. For neutral solutions with pH 7, $R_{Cd:Te} \approx 1$ and is almost constant over time. The same behavior applies for leaching in alkaline solutions, but with $R_{Cd:Te} \approx 0.1$. This means that more Te is dissolved in the solutions.

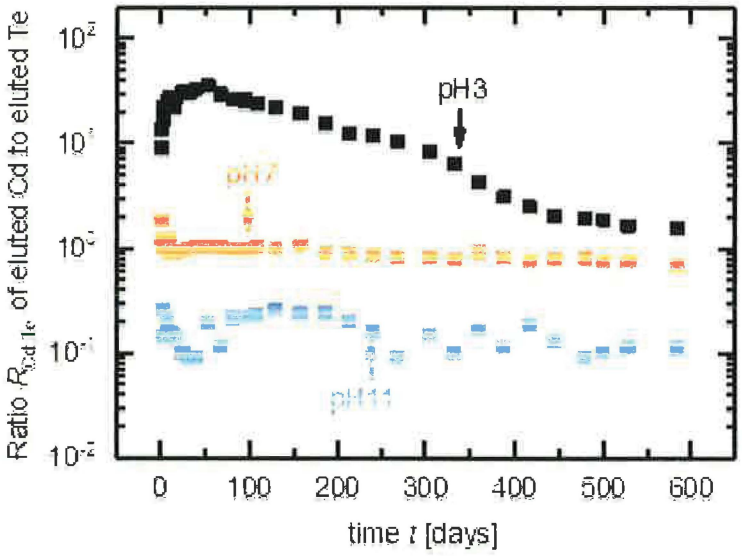

Figure 7. Ratio $R_{Cd:Te}$ of dissolved Cd to dissolved Te from leaching CdTe module pieces in solutions with pH 3, pH 7, and pH 11.

3.2.2. CIGS Module Pieces

Figure 8a shows a schematic cross-section through a CIGS module, composed of the front glass with EVA, the front contact (usually consisting of aluminum-doped zinc oxide, ZnO:Al), a buffer layer of CdS, the absorber layer Cu(In, Ga)Se_2, and a thin interfacial layer of $MoSe_2$ between the substrate glass and the CIGS. The $MoSe_2$ is formed by a reaction between the Mo and the Se atmosphere during the deposition of the Cu, In, and Ga [22]. CIGS modules are built in a substrate configuration. The fabrication starts with the deposition (sputtering or evaporation) of Mo on the rear glass. Then, the CIGS is deposited, mostly by co-sputtering or thermal evaporation of the constituent elements, Cu, In, and Ga in a Se atmosphere.

Figure 8b shows the leaching data for Zn, Cd, Mo, Cu, Ga, and In in pH 3 solutions. At the beginning of leaching, Zn from the front contact shows the highest amount with $c_{Zn} \approx 1\%$ already after one day; finally, we observe $c_{Zn} \approx 62\%$ after 1.5 years. Furthermore, already after one day, certain amounts of Mo from the back contact and In from the absorber layer are measurable in the solutions. Other elements, like Cd, Cu, and Ga, are detected later on. The leaching rates of each element differ in absolute values, but show a similar

time dependence. The leaching of the Mo from the CIGS module pieces differs from the data for Mo from CdTe module pieces (see Figure 4b). The Mo from CdTe module pieces seems to be more soluble, in particular for acidic solutions. The difference probably results from the formation of $MoSe_2$ at the back side of the CIGS films.

Figure 8c shows the leaching of Zn, Cd, Mo, Cu, Ga, and Se in pH 7 solutions. Indium is not detected in the solution with pH 7. The leaching of Zn for this pH is lower than that for pH 3, and so is the concentration after 1.5 years. In solutions with pH 11, we only find Mo, Ga, and Se with low concentrations in the solutions, as shown in Figure 8d. The leached Mo is lowest for pH 11 compared to the data from solutions with pH 3 and pH 7. In the case of CIGS module pieces, comparable to CdTe, the Mo back contact is a weak spot, but also the front contact Zn and the buffer layer Cd.

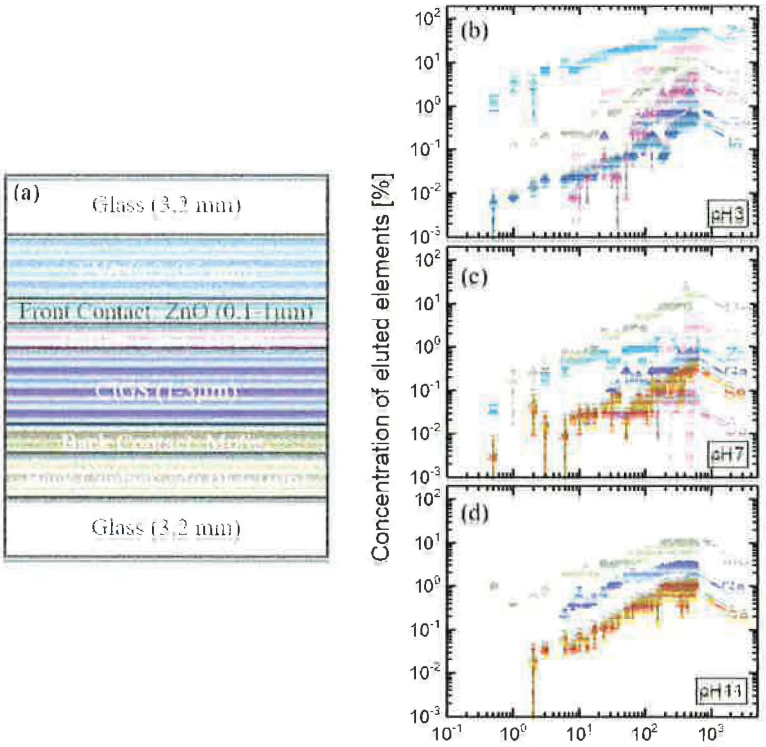

Figure 8. (**a**) Schematic structure of a typical CIGS module (not drawn to scale) and (**b**) time-dependent leaching results of the elements Zn, Cd, Mo, Cu, Ga, and In from CIGS module pieces in acidic aqueous solutions with pH 3 and (**c**) in solutions with pH 7 and (**d**) pH 11. In leaching solutions with pH 11, the concentrations of the elements Cd, Zn, Cu, and In are below the detection limit.

3.2.3. c-Si Module Pieces

Figure 9a shows a schematic cross-section through a classic c-Si module, consisting of a front glass with EVA, a silver front contact grid with contact fingers and busbars, and the silicon solar cell with a screen printed aluminum back contact and screen printed Ag contact pads (not drawn in the scheme). In contrast to thin film modules, instead of a rear glass, most c-Si modules have a backsheet and a second EVA sheet at the rear side. Figure 9b,c shows the leaching data for Al and Pb for pH 3 and pH 11 (see also [10] for the leaching results of Pb until Day 360). In the case of pH 7, the concentrations of Al and Pb are below the detection limit, which is 500 µg/L for Al and 20 µg/L for Pb. The eluted Pb stems either from the solder ribbon, which is not shown in the schematic cross-section, or from the screen printed metallization. For pH 3, the amount of leached Pb remains constant and below 0.1% until Day 241. After this time, the concentration increases dramatically up to $c_{Pb} \approx 3.7\%$ after 1.5 years. The concentration of Al reaches $c_{Al} \approx 27\%$ after 1.5 years in

the acidic solution. In contrast, for the alkaline solution with pH 11, the concentrations of Al and Pb are significantly lower, as shown in Figure 9c. In both cases, the leaching rates of Al are orders of magnitude higher than the ones for Pb. Thus, in the case of c-Si module pieces, the Al contact, which is screen printed and fired into the back side, makes up the weak spot and opens the path for leaching.

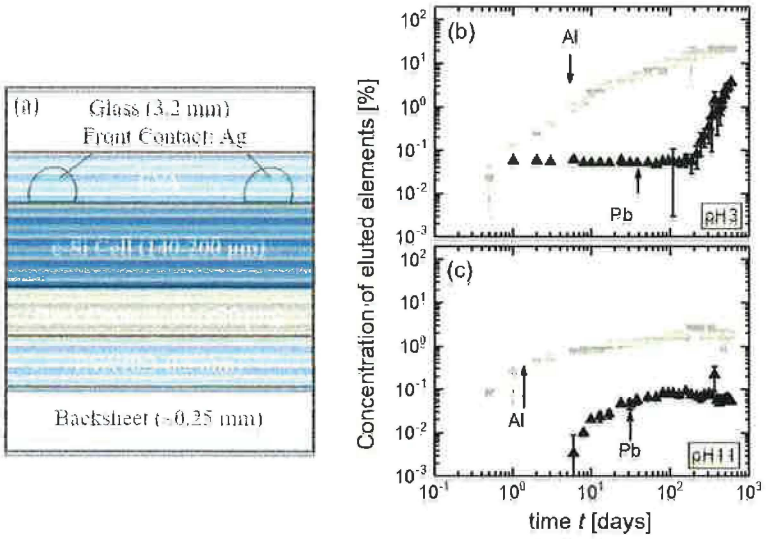

Figure 9. (**a**) Schematic structure of a typical c-Si module (not drawn to scale) and (**b**) time-dependent leaching results of Al and Pb from c-Si module pieces in acidic aqueous solutions with pH 3 and (**c**) in solutions with pH 11. In leaching solutions with pH 7, the concentrations of Al and Pb are below the detection limit.

3.2.4. a-Si Module Pieces

The common structure of an a-Si module is shown in Figure 10a. Amorphous silicon modules typically consist of a front glass with the front contact layer (SnO_2 is mostly used), the photoactive p-i-n layer from a-Si, followed by an intermediate layer consisting of ZnO and Ag, the back contact with a combination of Ni and Cu, and the encapsulant with the rear glass [23]. Similar to the production of CdTe modules, a-Si modules are built in a superstrate configuration, starting with the deposition of the front contact directly on the front glass. Figure 10b,c shows the concentrations of eluted Zn, Cu, and Ni in the solutions with pH 3 and pH 7. Unfortunately, we do not have any data about Ni before Day 388 of leaching. In leaching solutions with pH 11, the concentrations of Zn, Cu, and Ni are below the detection limits. For the other pH-values, we are able to present data: Zn, which stems from the intermediate layer, shows strong leaching with concentrations up to $c_{Zn} \approx 90\%$ after 1.5 years of leaching in the acidic pH 3 solution. The concentration of eluted Ni lies in the same range, whereas the concentration of Cu is $c_{Cu} \approx 7.5\%$. In aqueous solutions with pH 7, the elements Zn, Ni, and Cu leach only in minor amounts. The elements Zn, Cu, and Ni are leached out linearly with time, but with different rates depending on the element itself, as well as on the pH of the solution. In all cases, the leaching of the Zn is highest, and therefore, we identify the ZnO layer as a weak spot in a-Si module pieces.

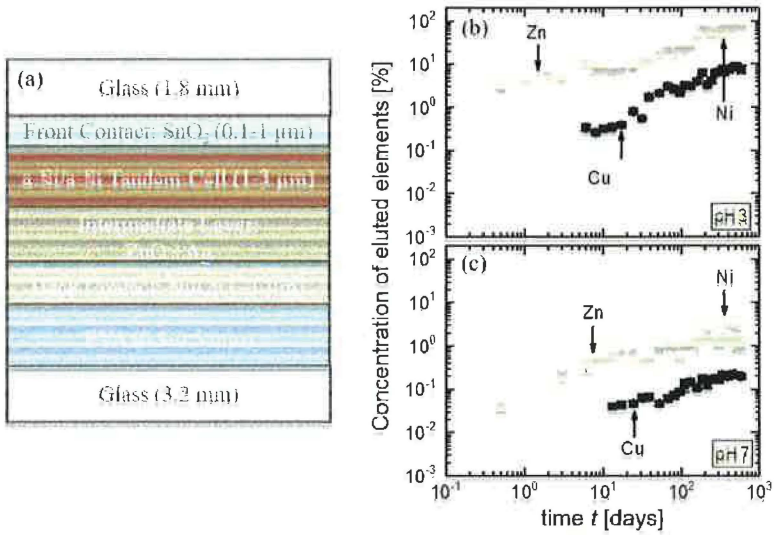

Figure 10. **(a)** Schematic structure of a typical a-Si module (not drawn to scale) and **(b)** time-dependent leaching results of Zn, Cu, and Ni from a-Si module pieces in acidic aqueous solutions with pH 3 and **(c)** in solutions with pH 7. In leaching solutions with pH 11, the concentrations of Zn, Cu, and Ni are not measurable according to the detection limit.

3.3. Accelerating Leaching Parameters for Cd from CdTe Module Pieces

All of the experiments considered so far were performed without any acceleration, for example, by elevated temperatures or stirring/agitation. Figure 11a,b compares the data for Cd, leached out from CdTe module pieces, for the three different pH-values and with/without agitation. Apart from the tests at $T_{RT} = 25\,^{\circ}\mathrm{C}$, we also used additional agitation and solutions at an elevated temperature $T_{IT} = 40\,^{\circ}\mathrm{C}$. All test series ran in parallel. Figure 11a shows the results after $t = 1$ day and Figure 11b after $t = 416$ days. The comparison of the two figures again underlines the dramatic difference in the leaching results after one day and after more than a year. Therefore, standard leaching experiments, which are only carried out over one day, are more or less meaningless, when one aims at judging the toxicity of CdTe modules. Furthermore, after just one day (see Figure 11a), additional agitation and/or elevated temperatures only slightly increase the amount of eluted Cd, even if for pH 3 solutions. In contrast, in particular for pH 7, increasing the temperature from $T_{RT} = 25\,^{\circ}\mathrm{C}$ to $T_{RI} = 40\,^{\circ}\mathrm{C}$ results in five times stronger leaching. Leaching in pH 11 solution triples the leaching of Cd for the same temperature increase. In contrast, in the case of agitation, we are not able to detect any Cd in the alkaline solutions after one day. In the case of pH 3, for all experimental conditions, after $t = 416$ days, the amount of eluted Cd in acidic solutions reaches almost 100%. In the case of the neutral pH 7 solutions, the final data all lie in the same range of $2\% < c_{Cd} < 4\%$. After 416 days, the eluted Cd reaches saturated values. Therefore, as shown in Figure 11b, there is almost no or only minor differences between the data with and without additional accelerating parameters.

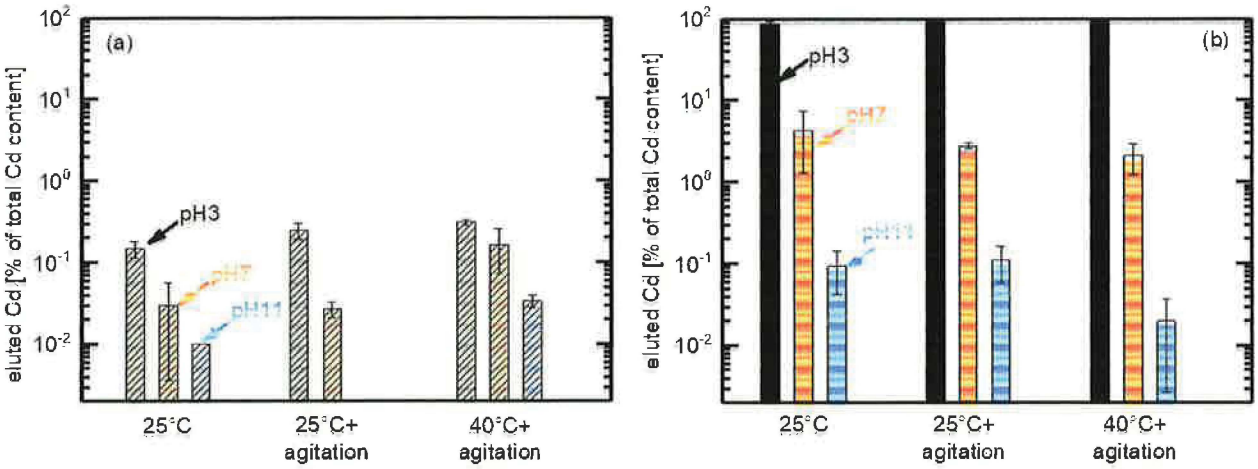

Figure 11. Dramatic difference between the leaching data after one day and more than a year of Cd out of CdTe module pieces. (**a**) Amount of eluted Cd from CdTe module pieces after $t = 1$ day in solutions of pH 3, 7, and 11 and different leaching conditions: with/without agitation and increased temperature $T_{IT} = 40\,^{\circ}C$ plus agitation. For all conditions, after one day, the Cd concentration ranges below 1%. (**b**) Amount of eluted Cd from CdTe module pieces after $t = 416$ days. For pH 3, almost 100% of the Cd is leached out. For pH 7, still several percent are leached out. This finding raises the question of the meaningfulness of judging the toxicity of CdTe containing modules with tests that are carried out for one day only.

3.4. *Analysis of Time Dependence*

To get a better understanding of how the different leaching conditions affect the time-dependent leaching, we fit the measured concentration $C(t)$ at the time t to an exponential model according to:

$$C(t) = C_{max}(1 - e^{-\frac{t}{\tau}}), \tag{2}$$

where C_{max} is the maximum, final concentration dissolved in the solution and τ is the leaching time constant. The leaching time constant represents the time for the concentration to reach 63% of its final value as a measure of leaching velocity. For times $t \ll \tau$, the Taylor expansion of Equation (2) yields a linear behavior according to:

$$C(t) = C_{max}\frac{t}{\tau}. \tag{3}$$

Indeed, in almost all of our experiments, if not disturbed by delamination effects, we see the linear time dependence predicted by Equation (3) and the saturation predicted by Equation (2). Equation (3) is the direct consequence of the number of atoms (Cd)that are leached per unit time, being directly proportional to the number of atoms that are still available for etching. Such an approach always leads to an exponential function such as Equation (2). However, not only delamination (which is expected to accelerate the leaching), but also other effects such as the formation of surface layers (see our work [24]), diffusion limitations, and/or the formation of precipitates could result in deviations from a behavior following Equations (2) and (3). For a diffusion limited leaching on a thin layer, one would observe a square root dependence, as discussed in [24]. This might be the case for some of the data here, in particular for pH 11.

Most of experimental data, in particular for pH 3 and pH 7, show an excellent agreement with the linear behavior, predicted by Equation (3) for time $t \ll \tau$, as well as for the saturation behavior, Equation (2). As an example, Figure 12a–c shows the time-dependent leaching of Cd from CdTe module pieces in solutions with pH 3 for the three different leaching conditions. The data are excellently fit with coefficients of determination $R^2 \geq 0.96$. Figure 12d–f shows the leaching data of Cd in solutions with pH 7. The dotted lines

represent the calculated fit according to Equation (2). The dashed lines show the calculated maximum Cd concentration C_{max} in the solutions; the time constants τ are also given. Modifications to the leaching conditions lead to accelerated leaching with a shorter time constant τ: For example, increasing the temperature to $T_{IT} = 40\,^{\circ}C$, as shown in Figure 12c, leads to a time constant that is only a third of the value at $T_{RT} = 25\,^{\circ}C$. In contrast to the time constant, the C_{max}-value is almost independent of the leaching conditions in pH 3 solution; it holds $C_{max} \approx 100\%$. Figure 12d shows the leaching data for pH 7 at $T_{RT} = 25\,^{\circ}C$ without agitation; we find $\tau = 210$ days. After this time $t = \tau$, a value of 63% of the maximum Cd concentration is reached, which is estimated to be $C_{max} = 4.8\%$. Modified experiments slightly decrease the maximum concentration, which we explain by the large standard deviations at the end of leaching, caused by the delamination of module pieces. Additional agitation decreases the time constant to $\tau = 80$ days (Figure 12e); increased temperature yields $\tau = 20$ days (Figure 12f), i.e., four-times faster leaching.

The excellent fits of our leaching data for pH 3 and pH 7 to Equations (1) and (2) show also that in this case, the leaching is not limited by any diffusion processes, which might take place inside or on the surface of the CdTe layers (this statement holds also for the experiments on all other cell technologies). This behavior is in contrast to our results on the leaching of milled module pieces, which were reported in a separate publication [24]. There, the model for the small spherical CdTe particles, with sizes below one millimeter, predicts a power law, with leaching data following a dependence on time t according to $t^{0.43}$. Indeed, in [24] we observed this behavior for the small particles also experimentally. Due to the different size and geometry of the samples, the leaching from the flat plates of module pieces as presented here, at least for pH 3 and pH 7, follows a different time dependence, which, for short times compared to the leaching time constant, is $t^{1.0}$, as, for example, shown in Figure 6b,c.

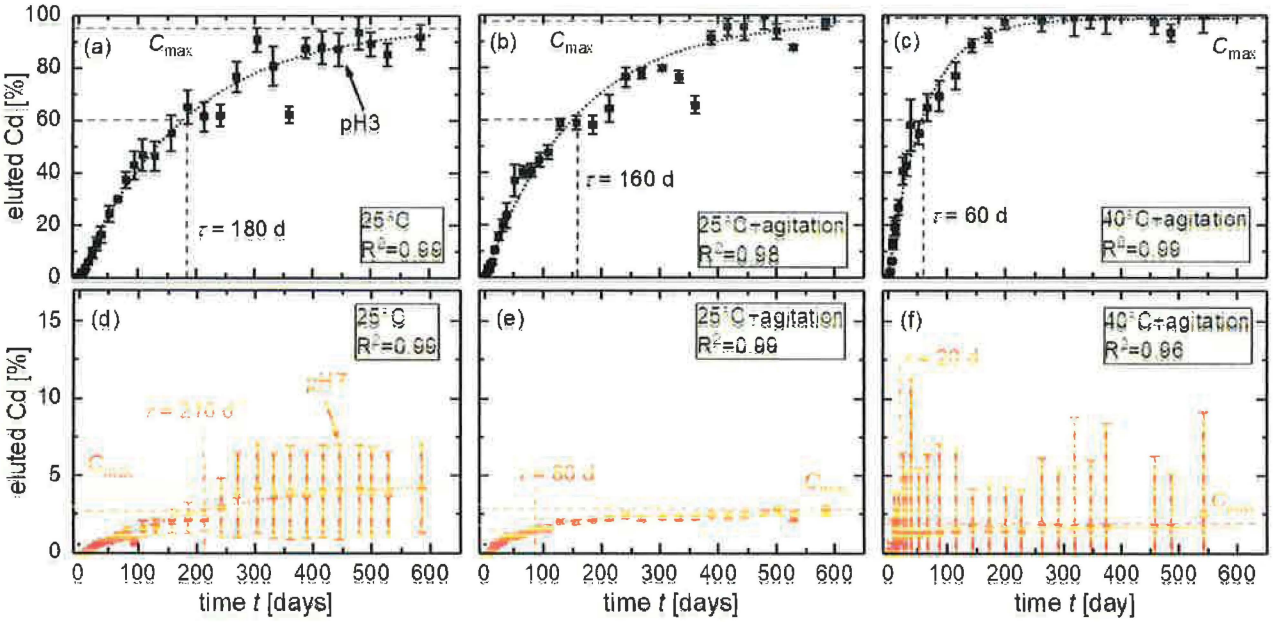

Figure 12. Leaching of Cd from CdTe module pieces in solutions with pH 3 at (**a**) $T_{RT} = 25\,^{\circ}C$, (**b**) at $T_{RT} = 25\,^{\circ}C$ with agitation, and (**c**) at $T_{IT} = 40\,^{\circ}C$ with agitation. Eluted Cd in solutions with pH 7 at (**d**) $T_{RT} = 25\,^{\circ}C$, (**e**) at $T_{RT} = 25\,^{\circ}C$ with agitation, and (**f**) at $T_{IT} = 40\,^{\circ}C$ with agitation. The dotted lines represent the calculated fit according to Equation (2) with high coefficients of determination R^2. The dashed lines show the calculated maximum concentration C_{max} in the solutions.

Figure 13a shows the leaching time constant τ for pH 3 and pH 7: A higher temperature results in faster leaching. In our study, $T_{IT} = 40\,^{\circ}C$ is used, which is a common temperature PV modules reach when exposed to sunlight; on hot summer days, the temperatures are

even higher. In solutions with pH 7, the change in the leaching time constant due to varied conditions is even stronger. In contrast to a different τ, Figure 13b shows that the maximum concentration C_{max} of eluted Cd remains nearly constant and independent of modifications to the leaching conditions. However, the value C_{max} highly depends on the pH of the leaching solution: it holds $C_{max} \approx 100\%$ for pH 3 and $C_{max} \leq 4.8\%$ for pH 7. The lower C_{max} for pH 7 is explained by the formation of cadmium hydroxide in neutral solutions. This compound is not soluble and therefore not detected by our measurement method ICP-MS.

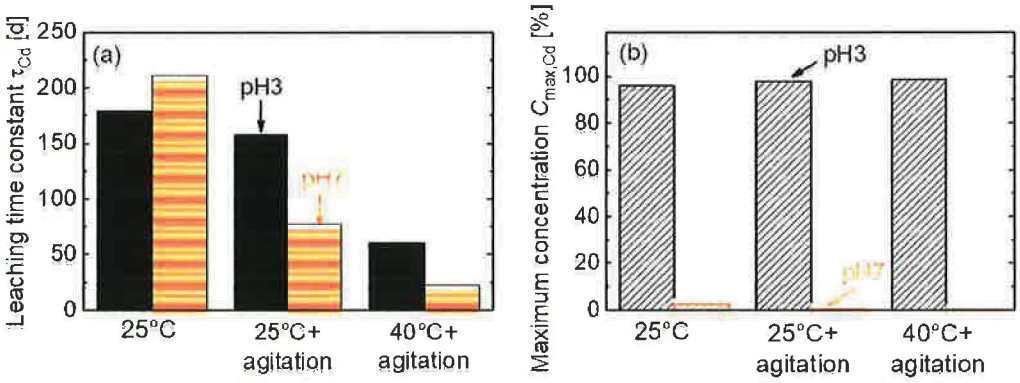

Figure 13. Calculated fit parameters for the leaching of Cd from CdTe module pieces under different conditions. **(a)** Leaching time constant τ_{Cd} for solutions with pH 3 and pH 7. **(b)** Maximum concentration C_{max} for the same conditions as in **(a)**.

3.5. Mass Balance for CdTe Module Pieces

Figure 14 shows the distribution of the mass fractions for the elements Cd, Te, and Mo from CdTe module pieces leached for 700 days at $T_{RT} = 25\,^{\circ}C$ without agitation: the dissolved amount in the solution M_{diss}, the remaining mass in the module piece M_{MP} after the leaching process, and the mass of the filter residue M_{FR} with particles bigger than 0.45 mm. There are strong differences between the leaching behavior for pH 3 and pH 11:

pH 3: Almost all Cd, Te, and Mo from the module pieces is found in the mass M_{diss} of dissolved elements. In particular, for Cd, almost nothing remains in the module piece (mass M_{MP}) or is found in the mass M_{FR} of precipitates.

pH 11: Almost all Cd and Te still remain in the module pieces and are represented by the mass M_{MP}. Only in the case of Mo, a part of the Mo is measured in the solution as M_{diss}.

Mass loss for Te and Mo: The sum of the masses in the solution, filter, and module pieces measured after the leaching should reach 100% of the value before the leaching. However, for Te and Mo, the sum of the measured values after leaching is below 100%. The relatively small amount of missing mass is termed M_{Rest} in Figure 14. We explain the difference by the milling process for the determination of the remaining mass M_{MP} in the module piece. For a few samples, the milling process did not completely crush the encapsulation. The Mo back contact has a strong adhesion to the encapsulant. Therefore, it seems possible that not all Mo material was digested. There might also be a material loss during the filtration process, either when drying the filter afterwards, or due to particles remaining in the HDPE bottles despite carefully repeated rinsing.

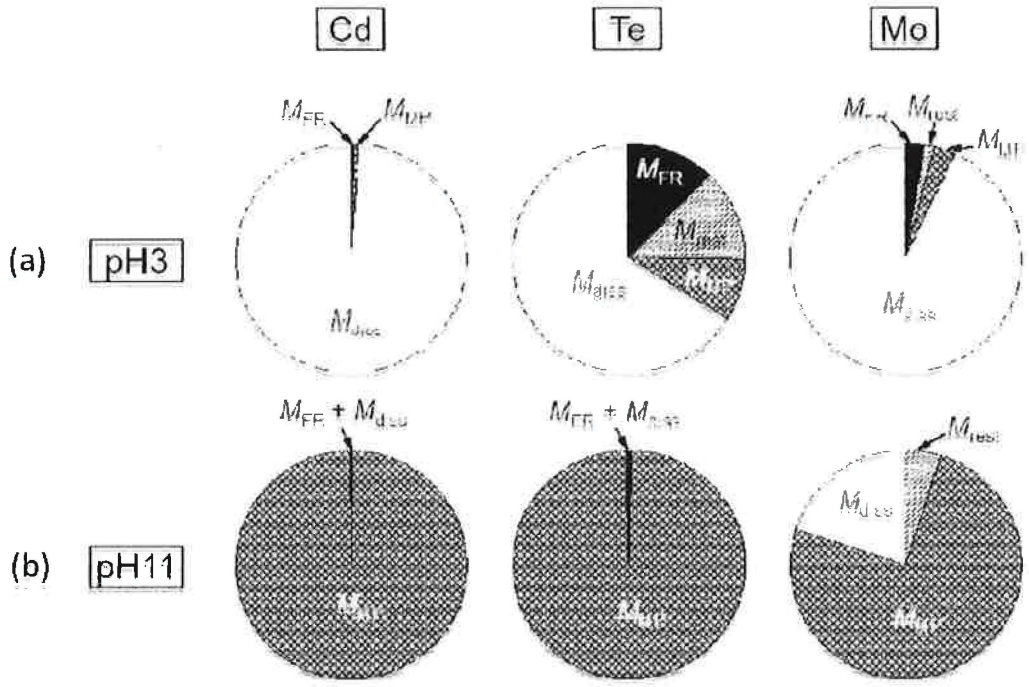

Figure 14. Mass balance of the CdTe module piece after 700 days in leaching solutions with (**a**) pH 3 and (**b**) pH 11 at $T_{RT} = 25\,°C$ without agitation. In solutions with pH 3, the largest fraction of Cd, Te, and Mo is dissolved and found as M_{diss}; only a small fraction M_{MP} remains in the module pieces. No Cd-particles (mass M_{FR}) are measured within the filter residue, whereas for Te and Mo, a small part is found in the residue. In solutions with pH 11, the major part of the elements Cd and Te remains in the module piece and is not leached out. Molybdenum is also measured in the solution.

4. Discussion

The combination of leaching experiments and the observation of delamination yields the following major insight: In the case of thin film modules (CdTe, CIGS, and a-Si), the delamination is the consequence of the high solubility of one or more thin layers of the modules' cells. They form a path for the attack of the water-based solutions. In contrast, in the case of modules containing cells from crystalline silicon, the cell's Al back contact is highly soluble, but not responsible for delamination. Instead, blistering occurs: delamination of c-Si modules is not visible on the back side, but on the front side, either between the front glass and EVA or between the EVA and the Si cell, depending on the pH of the leaching solution. Delamination between the front EVA and solar cell preferentially occurs around the solder ribbon on the front side of the cell and is therefore correlated with the leaching of Pb out of the solder ribbon. The backsheet on the rear side of the c-Si module piece shows no changes after the leaching. Unfortunately, the backsheet is not transparent; therefore, we do not have information about the condition of the solder ribbon on the back side and how the leaching of the Al back contact affects the leaching of the solder ribbon on the back. In solutions with pH 3, a local delamination takes place between the solar cell and the EVA foil, whereas in pH 11 solutions, the delamination occurs between front glass and EVA. In pH 7 solutions, we observe both kinds of delamination. The solution probably attacks the coupling agent. Therefore, in this case, we assume adhesion problems to be the main reason for blistering.

In the case of CdTe module pieces, the photoactive CdTe, as well as the Mo back contact are highly soluble in acidic, aqueous solutions with pH 3. The severe leaching correlates with the frequent total separation, i.e., delamination of the module pieces. For this type of module and under acidic conditions, frequently, the front side is clearly separated from the rear. As a consequence, this delamination enhances the leaching, especially of Te, which is

observed in all leaching solutions, independent of pH. For short times, leaching for Cd, Te, and Mo increases linearly with time, but at different rates; the rates depend on the pH. The ratio $R_{Cd:Te}$ of eluted Cd to eluted Te Cd:Te also depends on the pH. This behavior is in accordance with the Pourbaix (potential-pH) diagram for CdTe in aqueous solutions showing the possible species of Cd and Te depending on the pH and the redox potential E_H [6]. In solutions with pH 3, the Te species have a lower solubility compared to the Cd species, which are present as Cd^{2+} ions. The solubility of predominant species of Cd and Te for pH 7 is the same, which explains the ratio $R_{Cd:Te} = 1$. In solutions with pH 11, probably, Te species form with a solubility that exceeds that of Cd. This assumption explains the estimated $R_{Cd:Te} \approx 0.1$. It is notable that only in solutions with pH 3, the ratio $R_{Cd:Te}$ is strongly time dependent, whereas it is almost constant for solutions with pH 7 and pH 11.

Increasing the temperature results in accelerated leaching of Cd from CdTe module pieces. The same behavior was earlier reported by Collins and Anctil [25] for the leaching of Cd from CIGS modules and Pb from c-Si modules, by increasing the leaching temperature to $T = 50\,^{\circ}C$. All of our leaching data for Cd are well described by Equation (2) and the C_{max}-value for Cd, which decreases with increasing pH. This finding is in accordance with the data reported by Ramos-Ruiz [7] on leaching of Cd and Te out of CdTe modules in solutions with different pH values under simulated landfill conditions. This pH-dependent leaching is understood on the basis of known leaching patterns, not only for Cd, but for all measured elements in this study.

In contrast to CdTe modules, with total delamination, for CIGS module pieces, fractional separation occurs in solutions with pH 3, as well as with pH 7: only parts of the rear side are separated. Our leaching experiments point out all CIGS module layers to be more or less soluble in aqueous solutions. The highest solubility is found for Zn from the front contact in pH 3 solutions, and at this location, we observe the fractional separation. With the Zn eluted, there is no longer a stable bond between the front glass/EVA and the rear side consisting of the photoactive layers (CdS, CIGS) and the back contact on top of the rear glass.

The leaching concentrations of Cd out of CIGS module pieces are lower than from CdTe module pieces. This lower leaching of Cd indicates that CdS in the CIGS cells is more stable against the solutions than CdTe. The Mo back contact of CIGS module pieces also seems to be more stable than the Mo back contact of CdTe module pieces. Between these two module types, the amounts of leached Mo differ especially in solutions with pH 3 and pH 11: in these solutions, Mo from CIGS shows lower leaching than Mo from CdTe module pieces. This difference probably arises from the formation of the $MoSe_2$ layer during the deposition of the CIGS layer in module fabrication. Theelen et al. [26] proposed that $MoSe_2$ prevents the formation of molybdenum oxide, MoO_x, which is the main reason for the degradation of Mo when it comes in contact with water or moisture. Modules from CdTe do not contain a protecting $MoSe_2$ layer. Therefore, during leaching, MoO_x is probably formed. The formation of MoO_x results in a large volume expansion [26]. This could explain the observed delaminations for CdTe module pieces.

Amorphous silicon module pieces show also highly time-dependent leaching, in particular the front layer of ZnO in combination with the Ni/Cu back contact. After 1.5 years of leaching, the elements Zn and Ni reach almost 100% in solutions with pH 3. The time-dependent leaching behavior of Zn from a-Si module pieces is similar to the leaching behavior of Zn from CIGS module pieces in both solutions of pH 3 and pH 7. The leaching rates are also comparable. Therefore, in the case of a-Si modules, ZnO is a weak spot. This finding is in line with the experiments of Pern et al. [27]: These authors studied the stability of various transparent conducting oxides (TCO), including ZnO. In their experiments, ZnO showed the highest degradation rates (of all studied TCOs) when it comes in contact with moisture.

5. Conclusions

Our leaching experiments on PV modules pieces from CdTe, CIGS, c-Si, and a-Si in water-based solutions with pH 3, pH 7, and pH 11 simulate different environmental conditions. Due to the wide span of pH-values, it seems also possible to predict from our experiments the behavior for other pH-values. During the leaching over 1.5 years, we observe different types of delamination. In the case of thin film modules (CdTe, CIGS, a-Si), the thin film layers themselves or the contact materials (e.g., Mo, ZnO) are the weak spots. Finally, their leaching leads to delamination. In contrast, in the case of modules with c-Si, the Al back contact shows the strongest leaching. However, this leaching is not responsible for the delamination. Instead, problems with the EVA causes blistering, which leads to the delamination of the module pieces with c-Si.

The time-dependent leaching is well described by an exponential saturation behavior with a leaching time constant, at least for low pH-values. The leaching time constant differs from element-to-element and changes under agitation and/or a temperature increase. For times small compared to this time constant, the amount of leached out elements increases linearly with time. It is therefore understandable that, roughly speaking, the concentrations of many leached out elements after 500 days are also more than two orders of magnitude higher than after one day. However, we observe also ratios of the concentrations after one 500 days and after one day that are higher or lower than two orders of magnitude: Higher values are obtained, when delamination occurs during leaching. Lower values are obtained when, for example, the ratio of eluted to precipitating elements changes during the experiment.

In the case of Cd leaching from CdTe module pieces, increased temperature leads to substantially accelerated leaching. In contrast, the maximal concentration of leached Cd only depends on the pH of the solution. A mass balance method shows that Cd, which is not measured in the solutions as dissolved, remains in the module pieces themselves and is not, as expected, leached out and then precipitated in the solutions.

In any case and under all experimental conditions, it is possible to either leach out all or a substantial amount of most elements from the module pieces. Clearly, in the case of our module pieces, leaching starts from the unprotected edges of the pieces of 5×5 cm^2 in size, cut out from large area modules. During the manufacturing of commercial modules, they are provided with an edge sealing, which should prevent any leaching under normal operating conditions of the (undamaged) modules. However, if the edge sealing of the modules is not carefully done, or if it is damaged, or even worse, if the (front) module glass is broken, leaching is unavoidable. Rain water with pH values always below pH 7 will suffice to leach out the (toxic) elements. Even worse, if modules are cracked, crushed, or even milled and end up in landfills, the module constituents will also be leached out. Therefore, if toxic materials are not completely avoided in photovoltaic modules, it is of utmost importance to (i) replace damaged modules as fast as possible and to (ii) recollect and recycle them completely. In all other cases, in view of the huge amount of installed PV modules, most of them still containing Pb (mostly in the solder of the cell connectors) and/or Cd, they may impose a severe danger to the environment.

Compared to other, earlier studies, our experiments were carried out over more than a year. As one of the key results, we found huge differences between the amount of elements found in the solutions after one day and more than a year. In our opinion, tests for just one day are inappropriate to judge module technologies, in particular if conclusions and political decisions on the toxicity and environmental issues of photovoltaic module technologies are based on such short-term measurements.

Author Contributions: Conceptualization amd project administration, R.Z.-G. and J.H.W.; methodology, R.Z.-G., M.K., J.N.; validation and investigation, J.N., R.Z.-G., M.K., C.F.; analysis, writing, editing, and reviewing J.N., R.Z.-G., M.K., J.H.W. All authors have read and agreed to the published version of the manuscript.

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Tellurium leaches the least. Thus, already from this observation, it becomes clear that the Mo layer is a weak spot in the case of the CdTe module. After approximately 300 days of leaching, the concentration of Te increases dramatically and approaches the eluted amount of Cd and Mo. Around this time of leaching, delaminations are observed. After 1.5 years, the concentrations of eluted Cd and Mo related to the total amount in the module piece in acidic solutions (pH 3) reach $c_{Cd} \approx 92\%$ and $c_{Mo} \approx 88\%$. The amount of eluted Te is $c_{Te} \approx 54\%$.

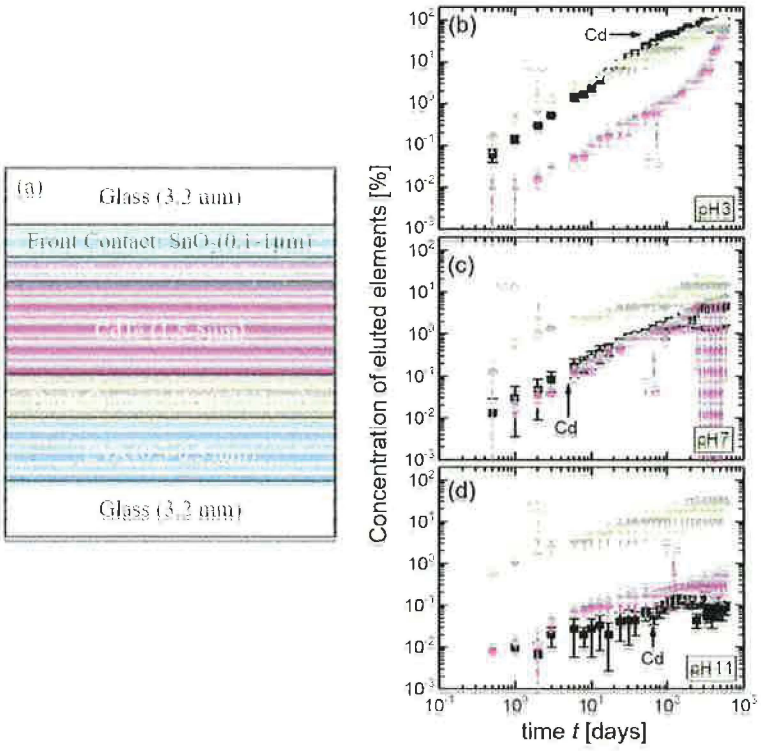

Figure 6. (**a**) Schematic structure of a typical CdTe module (not drawn to scale) and (**b**) time-dependent leaching results of the elements Cd, Te, and Mo from CdTe module pieces in acidic aqueous solutions with pH 3 and (**c**) in solutions with pH 7 and (**d**) pH 11.

Figure 6c shows the leaching in water-based solutions with pH 7. Here, the concentrations of eluted Cd, Mo, and Te, finally, after 1.5 years, reach $c_{Cd} \approx 4,5\%$, $c_{Mo} \approx 19\%$, and $c_{Te} \approx 7.8\%$, respectively. In this case, the leaching of Cd and Te shows the same time-dependent leaching behavior. The large standard deviations for Te appearing after approximately 300 days of leaching are due to the delamination of one module piece out of three experimental runs. Clearly, after delamination of this particular module piece, substantially higher amounts are leached out, because the leaching solution is able to directly attack the CdTe layers from the surface. Therefore, we observe substantially higher amounts of eluted Te and slightly higher amounts of Cd for this one out of the three experimental runs. The leaching of Mo is highest from the beginning to the end and comparable to the leaching amounts of Cd and Te.

Figure 6d presents the leaching data for pH 11. Here, at the end of the experiment, the amount of eluted Mo is still high with $c_{Mo} \approx 34\%$. The measured concentration of Te is below 1% after 1.5 years, and the amount of leached Cd is the lowest. In solutions with pH 11, the time-dependent leaching rates of Cd and Te are much lower compared to the leaching rates in solutions with pH 7 and pH 3. For all conditions, the leaching rate of Mo is always higher than the one of Cd and Te. This indicates again that, in the case of CdTe modules, the Mo back contact is a weak spot.

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Battery 'Bombs': More Giant Renewable Energy Batteries Explode in Toxic Fireballs

July 31, 2021 by stopthesethings 8 Comments

'Bombs' are designed to store and quickly release copious amounts of energy, so are the mega-batteries said to save wind and solar from their hopeless intermittency.

The notion is that giant lithium-ion batteries will quell the power delivery chaos that comes with attempting to rely wholly weather-dependent wind power and wholly sunshine-dependent solar power; thereby bringing stability and security to plenty a power grid teetering on the brink of collapse, all the consequence of our "inevitable transition" away from reliable and dependable power generation sources, like coal and gas.

But there's nothing 'stable and secure' about lithium batteries.

As Samsung mobile phone owners are painfully aware, lithium batteries have a horrifying habit of spontaneous ignition. STT has fond memories of watching fellow airline passengers being berated for having a Samsung 7 in their pocket.

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And there have been plenty of incidents where the lithium batteries in **Tesla's electric cars have exploded in flames**.

Now, it's grid-scale explosions and conflagrations that we need to be concerned about, not just the odd exploding Telsa S and Samsung 7.

Here's a little saga from the land Downunder, where a giant Tesla decided to release a whole of 'wonderful green' energy in a furious hurry.

Crews battle Tesla battery fire at Moorabool, near Geelong
ABC
Leanne Wong
30 July 2021

A toxic blaze at the site of Australia's largest Tesla battery project is set to burn throughout the night.

The fire broke out during testing of a Tesla megapack at the Victorian Big Battery site near Geelong.

A 13-tonne lithium battery was engulfed in flames, which then spread to an adjacent battery bank.

More than 150 people from Fire Rescue Victoria and the Country Fire Authority responded to the blaze, which has been contained and will be closely monitored until it burns itself out.

"If we try and cool them down it just prolongs the process," the CFA's Assistant Chief Fire Officer Ian Beswicke said.

"But we could be here anywhere from 8 to 24 hours while we wait for it to burn down."

The Tesla battery is expected to become the **largest battery (or bomb) in the southern hemisphere** as part of a Victorian Government push to transition to renewable energy.

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Ambulance Victoria members are also on site monitoring the health of firefighters.

A toxic smoke warning has been issued near Geelong.

Residents have been warned to close windows, close fireplace flues and bring their pets inside in the Batesford, Bell Post Hill, Lovely Banks and Moorabool areas.

No-one was injured and the site has been evacuated.

Australian Energy Market Operator (AEMO) said the battery had been isolated and disconnected from the main electricity grid and "there are no implications" for supply.

The Tesla battery was paid for by renewable energy company Neoen.

Neoen Australia's Managing Director, Louis de Sambucy said Neoen and Tesla were working closely with emergency services on site to manage the situation.

Health Impacts of

Gary Weaven's Pac
Neighbour from He

STT ON TWITTER

RT @janpraet4: Pa
windmills cannot b
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RT @ASirbasku: W
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STOP THESE THINGS

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Battery fire Geelong

Transcript

Ian Beswicke: Yeah, the plan is that we'll let the battery bank burn itself out. Now it's about 15 metres long by three metres high by three metres wide. There's another one right beside it that is currently burning as well. So we cannot put them out with water or anything else. The best way to deal with these things is to let them burn until they are burnt out. If we try and cool them down, it just prolongs the process. So by letting them burn, and this wind is helping us by keeping it burning fairly freely, but we could be here anywhere from eight to 24 hours whilst we wait for it to burn down.

ABC

So, there you have it – when one of these 'planet saving miracles' spontaneously bursts into a lethally toxic fireball, it's a case of burn, baby burn! No point attempting to extinguish the blaze, just keep clear of the toxic fumes and let it eventually burn itself out.

Oh, and if you think this is a rare and unusual occurrence, see our post here: **Giant Batteries Bomb: Renewable Energy Storage Systems Literally Setting The World On Fire**

And here are a couple more for your "Blazing RE Battery" scrapbook –

care of the team from Jo Nova.

Big batteries could be bigger bombs than Beirut Fertilizer
Jo Nova Blog
Jo Nova
13 July 2021

It turns out storing Megawatts of high density energy in a confined space is "like a bomb". Who could have seen that coming, apart from everyone who understands what a megawatt is?

Clean, green, noisy and explosive.

And they are "unregulated" in the UK.

GWPF

> UK's giant battery 'farms' spark fears of explosions that can reach temperatures of 660C
> Amy Oliver
> **Mail on Sunday**
>
> ...according to a troubling new report from leading physicists, these vast batteries amount to electrical bombs with the force of many hundreds of tons of TNT.
>
> With the potential for huge explosions, fires and clouds of toxic gas, they could devastate towns and villages nearby, says Wade Allison, emeritus professor of physics at Oxford University and co-author of the report.
>
> The batteries, designed as reservoirs of spare electricity for when the wind doesn't blow or the sun fails to shine, are spreading around the British countryside. And this, says Prof Allison and his fellow scientists, could spell catastrophe.
>
> It's like a potential bomb,' he says. 'When batteries catch fire, you can't just squirt water on them and put out the flames. It's evident from our research that nothing has been done to tackle this problem.'
>
> Given the size of the proposed plants, Prof Allison says this could, in theory, lead to an explosion several times bigger than the one that destroyed the harbour in Beirut last year.
>
> The threat of fire is not merely theoretical. South Korea saw 23 battery farm fires in just two years. A recent battery fire in Illinois burned for three days and thousands of residents were evacuated.
>
> Such blazes release highly toxic gases. One – hydrogen fluoride – is lethal if inhaled, and causes irreversible health effects after an

hour of exposure, according to Public Health England.

Meanwhile **3 – 4,000 people** were evacuated in Morris Illinois the week before last, as 100 tons of batteries burned. The fire burned for days. They could not use water or foam, and in the end, the **burning batteries were smothered with 28 tons of cement**.

These were run of the mill cell-phone and car batteries.

CBS Chicago
@cbschicago

State Declares Disaster For Morris After Battery Fire chicago.cbslocal.com/2021/07/05/mor...

6:00 PM · Jul 5, 2021

♡ 7 💬 1 Copy link to Tweet

Jo Nova Blog

One of South Korea's big batteries having a 'moment'

COMMENTS PREPARED FOR THE PUBLIC SCOPING MEETING

HELD ON AUGUST 12, 2021

FOR THE BRAWLEY SOLAR ENERGY FACILITY PROJECT

SUBMITTED BY CAROLYN ALLEN ON BEHALF OF MYSELF , DONNA TISDALE,

LARRY COX and MICHAEL COX AS INDIVIDUALS . THESE COMMENTS ARE ALSO MADE ON BEHALF OF DONBEE FARMS AND BACKCOUNTRY AGAINST DUMPS

These comments are for the record.

During the scoping process for the Brawley Solar Energy Facility Project proposed by ORNi 30 LLC

Some of the areas of concern we feel need to be addressed are:

1) This project converts both farmland of statewide importance and a little prime farmland. This project is another example of irresponsible placement of renewable energy facilities. Our countY'S agricultural resources are a finite resource that should not just be mitigated away !!
2) Loss of farm related jobs both on farm and in ag support business.
3) Damage to crops
4) Address affects for residents in the area. We have 2 homes for some of our farm employees That are directly across from the project . We worried about how this project might adversely affect them. For example exposure to EMF, Dirty Electricity , Contaminents etc
5) Destruction of wildlife habitat that farm crops provided
6) Concerns for How is this project and the cumulative renewable energy projects on farmground are going to affect our water rights.
7) How will this and other projects affect hydrology issues not only in the immediate project vicinity but also the vast and complex irrigation and drainage system here in the Valley
8) Extreme fire hazard posed by the batteries used in the Battery Energy Storage System & toxic smoke
9) Air quality issuesNoise pollution
10) Potential damage due to Contaminates from the project
11) There are at least 36 areas listed in the Initial Study showing "Potentially Significant Impacts" This shows just some of the many reasons why Large Solar Facilities should not be placed on farmland.

THESE SOLAR PROJECTS DO NOT BELONG ON FARMLAND

SUBMITTED BY Carolyn Allen [redacted]

OPPOSITION COMMENTS: ORNI 30,LLC (BRAWLEY SOLAR)

GPA#21-0003; ZONE CHANGE #21-0003; CUP#20-0030, WSA & INITIAL STUDY #20-0041

DATE: August 30, 2021

TO: David Black, Planner IV via: davidblack@co.imperial.ca.us ; Planning & Development Services Dept, County of Imperial: cc: svolker@volkerlaw.com ; jvolker@volkerlaw.com

FROM: Donna Tisdale, Michael Cox, Carolyn Allen, Lawrence Cox; C/O Donbee Farm [redacted]

Section 1 of the California Constitution grants "all people" "inalienable rights" and "among these rights are enjoying and defending life and liberty, acquiring, possessing, and protecting property, and pursuing and obtaining safety, happiness, and privacy"[1]

These initial comments are submitted into the record on behalf of and at the request of our Cox Family members named above. Our concerns include but are not limited to the following:

The approximately 227 acre Brawley Solar Energy Facility project, with 40MW solar and 40 MW battery storage, is proposed on active farmland immediately west of Best Road and across from two actively farmed properties (Rockwood 131 & 131A-80 acres each), with two occupied employee homes, that the four of us own together. The two homes shown in the photos below are located within approximately 120 ft of the project at the corner of Best Road and Ward Road.

An Environmental Impact Report is required due to numerous project impacts.

Environmental Checklist Form @ page1:

- **#8 Description of Project:** A clarification is needed regarding the phrase (not to exceed 80 MW). Is that intended to cover both the solar PV and the Battery Energy Storage System (BESS), or does it mean just the BESS itself is not to exceed 80 MW?
- **# 9 Surrounding land uses and setting:**

[1] https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=CONS&division=&title=&part=&chapter=&article=I

- This section failed to include our two existing and occupied employee houses documented in the photos above. Additional homes, located just east of the project boundaries, north of our two houses along Best Road, were not included.
- A horse boarding / training facility with house to the south was not included either.

Environmental Factors Potentially Affected @ page 3:

- ***In addition to the 15 potentially significant impacts already listed in the Initial Study, the following additional 5 impacts should be added:***
  - **Energy:** This section should address the life cycle impacts of solar panels and batteries that generally cannot be fully recycled, along with electrical pollution.
  - **Housing:** The use and enjoyment of the impacted homes / properties will be degraded by any approval, construction, and operation of an industrial scale solar / energy storage facility right next door.
  - **Noise:** Several adjacent homes and the horse boarding facility will be subjected to new noise emissions generated by the solar inverters, tracking systems, the battery storage facility, and all the industrial air conditioning units required to keep all that project equipment cool. Together, the noise could be significant and cumulatively significant.
  - **Recreation:** People who board, train, and / or ride their horses in the impacted area will have their experiences degraded. They may move their horses to another facility thereby potentially impacting the income of the owner of that facility.
  - **Wildfire:** The introduction of a solar energy / energy storage project adjacent to homes, hundreds of acres of crops that are often dry and more fire prone during harvest, and the vegetated New River bed represent a new significant source of wildfire and toxic smoke from burning batteries.

EVALUATION OF ENVIRONMENTAL IMPACTS @ PAGES 9-50

I.AESTHETICS:

- Our concerns include the change from rural open landscapes to cluttered and dense industrial y solar / battery facility with new glare and lighting.
- Our family members and employees may be subjected to glare from the project when working our adjacent fields and from our two employee homes.
- We request that the project setback be significantly increased and screened from view from our impacted properties and two existing homes.
- We also request that any night lighting be shielded and directed downward to reduce impacts.
- The FAA should be conducting a review of the project's impacts on the Brawley Municipal Airport. Several of our family members are pilots who use the Brawley airport. The FAA is currently conducting a review of the Jacumba Valley Ranch Solar project that impacts the Jacumba Airport in southeastern San Diego County, just west of the Imperial County line.

II. AGRICULTURE RESOURCES:

- ***We strongly oppose the conversion of productive designated Farmland of Statewide Importance and Prime Farmland into industrial solar.***

- It is our understanding that there are already over 23,000 acres of solar either operating, approved, or pending in Imperial County.
- These solar conversion projects represent death by a thousand cuts to viable farming.

III.AIR QUALITY:

- The biggest concern is the potential for a long construction period that will expose our employees and tenants to increased levels of dust and particulates.
- We are also concerned with the potential for toxic smoke from battery fires that may require evacuation of the immediate area that could impact / disrupt our tenants and farming operations. This has happened recently in the US and Australia.

IV. BIOLOGICAL RESOURCES:

- Displacement of wildlife is always a concern.
- The adjacent freshwater ponds and the New River may attract avian species that could mistake the solar panels for water, thereby causing collisions and potential injuries /death.

V. CULTURAL RESOURCES:

- No comment pending Cultural Resources Report.

VI.ENERGY:

- It is good to see recognition for the "Energy used in the production of construction materials, such as asphalt, steel, concrete, and manufactured or processed materials such as lumber and glass."
- *However, where is recognition of the energy that will be consumed during the disposal / recycling / transport of degraded / discarded /replaced solar panels and batteries?*
- *Where is recognition of energy needed to transport all the project construction materials to the project site?*
- *Where are those supplies coming from?*
- *Are they traveling by cargo ship from Asia, are they traveling by truck, train or air transport? What type of fuel and how much will be consumed in total?*
- The Operations-Related Electricity section refers to the project providing a significant renewable resource for the IID that would help the IID achieve State Renewable Portfolio Standards.
- ***Does the IID have a Power Purchase Agreement with the Brawley Solar project?***
- If not, how will the project benefit the IID as alleged?
- How can the alleged project-generated 2.8 % of energy consumed by IID be considered "significant" as claimed?
- The amount of energy this project will consume for all of the project's electronic components including HVAC units must be disclosed.
- BESS: All the energy consumed to mine the minerals and other materials used for the battery storage system must also be disclosed and accounted for.
- **Energy Storage System = Fire hazard**

- Generally, the battery storage units are 1 MW each which means there will be about 40 such cargo sized containers.
- They will all have air conditioning units that will consume lots of energy and make lots of noise / vibrations that will carry in the generally quiet rural area.
- SDG&E has reportedly met CPUC mandated 165 MW of energy storage procurement with 30 MW Escondido ESS (400,000 batteries), and five other systems that all use lithium-ion battery technology.[2].
- Photo below shows battery containers at SDG&E's Escondido Energy Storage facility as published and described below in a Utility Dive article (12-6-16)[3] as an example of what the proposed 40 units may look like.

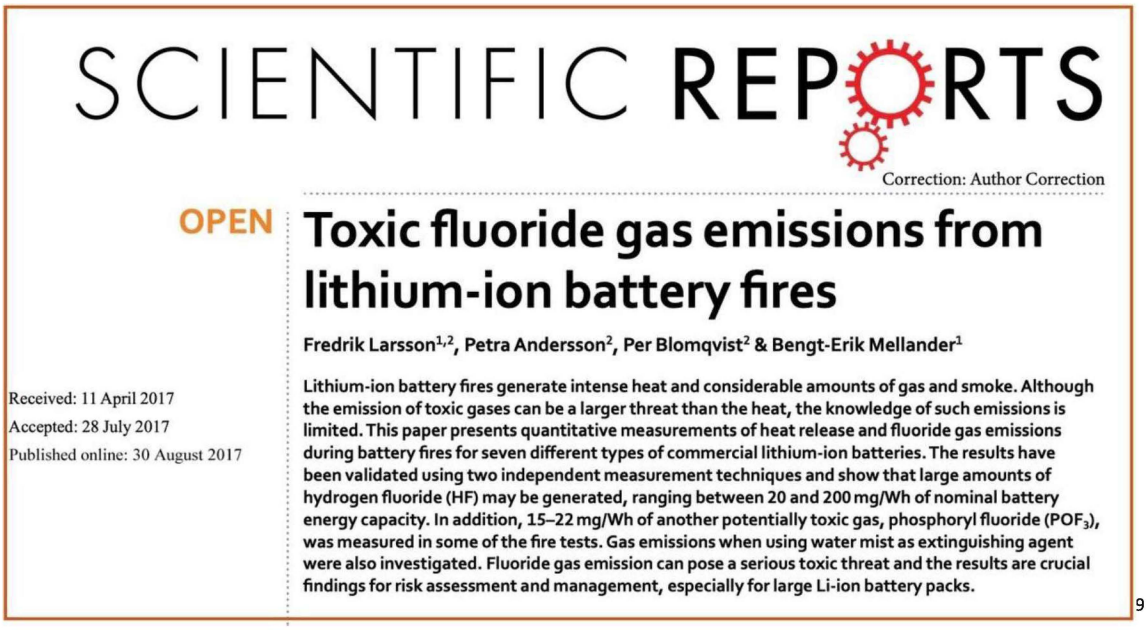
  - Using a battery to meet demand peaks means it will likely be fully charged and discharged nearly every day. That puts a lot of strain on lithium batteries, which degrade as they get older and are cycled more often.
  - Under SDG&E's contract, AES must maintain the batteries' nameplate capacity and performance for 10 years, after which the utility takes responsibility for the project. Typically this is done two ways — by oversizing a battery project upfront or by adding new cells during operation to support capacity.
- The statement above indicates that more batteries will be added as old batteries degrade. Degraded batteries are reportedly less stable.

- **Some ESS systems include coolant pumps, fans, exhaust manifolds, and radiators that use ethylene glycol.**[4]
  - Ethylene glycol ($HOCH_2CH_2OH$)[5] is a colorless, syrupy liquid. It can harm the eyes, skin, kidneys, and respiratory system. Ethylene glycol can cause death if swallowed. Workers may be harmed from exposure to ethylene glycol. The level of exposure depends upon the dose, duration, and work being done.

[2] https://www.sandiegouniontribune.com/business/energy-green/sd-sdge-energystorage-20170421-story.html
[3] Utility Dive 12-6-16: https://www.utilitydive.com/news/inside-construction-of-the-worlds-largest-lithium-ion-battery-storage-faci/431765/
[4] At page 29: https://www.nfpa.org/-/media/Files/News-and-Research/Resources/Research-Foundation/Symposia/2016-SUPDET/2016-Papers/SUPDET2016BlumLong.ashx?la=en
[5] https://www.cdc.gov/niosh/topics/ethylene-glycol/default.html

- **2018 IFC Battery Room Protection Automatic smoke detection system per Section 907.2. Signage on or near battery room doors**[6]: Cautionary markings to identify hazards with specific batteries (corrosives, water reactive, hydrogen gas, Li-ion batteries, etc.)
    - Do the batteries release toxic/highly toxic gases during charging, discharging, and normal use?
        - **2018 IFC Battery Specific Protection Systems that release toxic/highly toxic gases during charging, discharging and normal use must comply with Chapter 60**[7] Exhaust ventilation is required for system that produce combustible gases during normal use Spill control and neutralization required for systems with liquid electrolytes.
    - **Gas Safety risks in Li-Ion battery charging rooms**[8]:
        - Li-Ion batteries when overcharged or short circuited are overheated and catch fires
        - Li-Ion battery fires have caused great concern because of risks due to spontaneous fires and intense heat generated by such fires
        - As a result of the above-said a lethal amount of toxic Hydrogen Fluoride Gas, HF is generated.
        - HF from Li-Ion battery fires can pose severe gas safety risks in confined spaces like battery charging rooms, renewable energy storage plants in solar or wind power plants
        - The electrolyte in Li-Ion battery is flammable and generally contains Lithium Hexa- fluoro -phosphate (LiPF6)
        - In the event of overheating due to overcharging or short circuiting and backed by high temperature, the electrolyte in Li-Ion batteries will vaporise liberating toxic gases like CO, CO2, HF (hydrogen fluoride)
        - The moisture and humidity will further exacerbate the situation generating more HF (reaction of LiPF6 with water or humidity)
        - Typical HF concentration expected can be as high as 20-200 ppm of HF (NIOSH/USA Safety limit , TWA:3 ppm HF, STEL: 6 ppm HF)

[6] At page 21: https://www.iccsafe.org/wp-content/uploads/Energy-Storage-Systems-Fire-Safety-Concepts-in-the-2018-IFC-and-IRC.pdf
[7] At page 21: https://www.iccsafe.org/wp-content/uploads/Energy-Storage-Systems-Fire-Safety-Concepts-in-the-2018-IFC-and-IRC.pdf
[8] http://www.alviautomation.com/lithium-ion-battery-fires-hydrogen-fluoride-detector/



SCIENTIFIC REPORTS

Correction: Author Correction

OPEN

Toxic fluoride gas emissions from lithium-ion battery fires

Fredrik Larsson[1,2], Petra Andersson[2], Per Blomqvist[2] & Bengt-Erik Mellander[1]

Received: 11 April 2017
Accepted: 28 July 2017
Published online: 30 August 2017

Lithium-ion battery fires generate intense heat and considerable amounts of gas and smoke. Although the emission of toxic gases can be a larger threat than the heat, the knowledge of such emissions is limited. This paper presents quantitative measurements of heat release and fluoride gas emissions during battery fires for seven different types of commercial lithium-ion batteries. The results have been validated using two independent measurement techniques and show that large amounts of hydrogen fluoride (HF) may be generated, ranging between 20 and 200 mg/Wh of nominal battery energy capacity. In addition, 15–22 mg/Wh of another potentially toxic gas, phosphoryl fluoride (POF_3), was measured in some of the fire tests. Gas emissions when using water mist as extinguishing agent were also investigated. Fluoride gas emission can pose a serious toxic threat and the results are crucial findings for risk assessment and management, especially for large Li-ion battery packs.

[9]

Main Risks and Target Organs

Hydrogen fluoride is highly corrosive to all tissues.

Skin: Burns, necrosis; underlying bone may be decalcified.

Eyes: Burns.

Gastrointestinal: After ingestion, the oropharynx and the oesophagus are the primary sites of injury.

Heart: Systemic absorption occurs following skin exposure or ingestion; severe and rapid hypocalcaemia may ensue with cardiac dysrhythmia and arrest.

Lungs: After inhalation, severe pulmonary injury may occur with pulmonary oedema and bronchopneumonia.

Neuromuscular: Tetany may occur due to hypocalcaemia after systemic absorption.

- **Hydrogen Fluoride (Hydrofluoric Acid) 7664-39-3 Hazard Summary**: Hydrogen fluoride is used in the production of aluminum and chlorofluorocarbons, and in the glass etching and chemical industries. Acute (short-term) inhalation exposure to gaseous hydrogen fluoride can cause severe respiratory damage in humans, including severe irritation and lung edema. Severe eye irritation and skin burns may occur following eye or skin exposure in humans. Chronic (long-term) exposure in workers has resulted in skeletal fluorosis, a bone disease. Animal studies have reported effects on the lungs, liver, and kidneys from acute and chronic inhalation exposure to hydrogen fluoride. Studies investigating the carcinogenic potential of

[9] https://www.researchgate.net/publication/319368068_Toxic_fluoride_gas_emissions_from_lithium-ion_battery_fires

hydrogen fluoride are inconclusive. EPA has not classified hydrogen fluoride for carcinogenicity.[10]

Inverters, Transformers & Associated Equipment

- The photo below was taken by Donna Tisdale in September 2013 at one of the industrial solar projects built on productive farm land in South Western Imperial County, south of I-8.

- The actual type of inverters/transformers planned for Brawley Solar should be disclosed during public comment—not after-the-fact. They are noisy and can emit electrical pollution/ dirty electricity that can move off-site through the air and the ground.
- **Electrical Magnetic Interference (EMI) and Radio Frequency Interference (RFI) are common electrical pollution problems that must be addressed**[11], especially when the project is proposed so close to non-participating residents.
- ***Wind and solar projects dump energy into the ground when they are curtailed and when harmonics pose a threat to their own equipment.*** That transient/stray voltage moves off-site and into homes and businesses through plumbing and other grounded equipment. Energy can also be radiated through the air and inducted into occupied structures through utility lines.
- **French farmers say wind turbines and solar panels have killed hundreds of their cows**[12]
    - Cows are being killed by electricity travelling through the ground, farmers claim.
    - French farmer says hundreds of cows being killed by solar panels and turbines.
    - Cattle in Brittany began losing weight and eventually died so land was tested.
    - Electrical current was said to be found coming thought the earth and the water.
- **Majid Bagheri Hosseinabadi, Narges Khanjani, Mohammad Hossein Ebrahimi, Bahman Haji & Mazaher Abdolahfard (2019) The effect of chronic exposure to extremely low-frequency electromagnetic fields on sleep quality, stress, depression and anxiety, Electromagnetic Biology and Medicine, 38:1, 96101, DOI: 10.1080/15368378.2018.1545665**

[10] https://www.epa.gov/sites/production/files/2016-10/documents/hydrogen-fluoride.pdf
[11] https://www.solar-electric.com/reducing-electromagnetic-interference-pv-systems.html
[12] https://www.dailymail.co.uk/news/article-6855801/French-farmers-say-wind-turbines-solar-panels-killed-hundreds-cows.html

- Abstract: (emphasis added): "*Exposure to extremely low-frequency electromagnetic fields (ELF-EMF) is inevitable in some industries. There are concerns about the possible effects of this exposure. The present study aimed to investigate the effect of chronic exposure to extremely low-frequency electromagnetic fields on sleep quality, stress, depression and anxiety among power plant workers.*
- *In this cross-sectional study, 132 power plant workers were included as the exposed group and 143 other workers were included as the unexposed group. The intensity of ELF-EMF at work stations was measured by using the IEEE Std C95.3.1 standard and then the time weighted average was calculated. Sleep quality, stress, depression and anxiety were measured by using the Pittsburgh Sleep Quality Index Questionnaire; and the Depression, Anxiety and Stress Scale.*
    - *The workers in the exposed group experienced significantly poorer sleep quality than the unexposed group. Depression was also more severe in the exposed group than the unexposed group (P = 0.039). Increased exposure to ELF-EMF had a direct and significant relation with increased stress, depression, and anxiety. Sleep quality in technicians with the highest exposure was significantly lower than the other groups.*
    - *This study suggests that long-term occupational exposure to ELF-EMF may lead to depression, stress, anxiety and poor sleep quality."*

- **Electromagnetic field (ELF-EMF) on cytokines of innate and adaptive immunity, Electromagnetic Biology and Medicine, 38:1, 8495, DOI: 10.1080/15368378.2018.1545668**[13]
    - Abstract: (emphasis added) *"Extremely low frequency electromagnetic field (ELF-EMF) is produced extensively in modern technologies. Numerous in vitro and in vivo studies have shown that ELF-EMF has both stimulatory and inhibitory effects on the immune system response. This review was conducted on effects of ELF-EMF on cytokines of innate and adaptive immunity. Mechanisms of ELF-EMF, which may modulate immune cell responses, were also studied. Physical and biological parameters of ELF-EMF can interact with each other to create beneficial or harmful effect on the immune cell responses by interfering with the inflammatory or anti-inflammatory cytokines. According to the studies, it is supposed that short-term (2-24 h/d up to a week) exposure of ELFEMF with strong density may increase innate immune response due to an increase of innate immunity cytokines. Furthermore, long-term (224 h/d up to 8 years) exposure to low-density ELF-EMF may cause a decrease in adaptive immune response, especially in Th1 subset*."
- **Effects of Exposure to Electromagnetic Fields: 833 Studies**[14]**;Posted February 1, 2018 on Electromagnetic Radiation Safety by Joel M. Moskowitz, Ph.D. Director Center for Family and Community Health, School of Public Health University of California, Berkeley** :
    - Government and industry-linked scientists often claim that the research on the effects of exposure to electromagnetic fields (EMF) is inconsistent, and that more research is

[13] https://www.researchgate.net/publication/329451963_A_review_on_the_effects_of_extremely_low_frequency_electromagnetic_field_ELF-EMF_on_cytokines_of_innate_and_adaptive_immunity
[14] https://www.saferemr.com/2018/02/effects-of-exposure-to-electromagnetic.html

needed before precautionary warnings are issued or regulatory guidelines are strengthened.

- Although most of the research on cell phones has focused on radio frequency radiation (RFR), these wireless devices also produce extremely low frequency electromagnetic fields (ELF EMF). The International Agency for Research on Cancer of the World Health Organization classified ELF EMF "possibly carcinogenic to humans" (Group 2B) a decade earlier than RFR.
- Dr. Henry Lai, Professor Emeritus at the University of Washington and Co-Editor-in-Chief of the journal Electromagnetic Biology and Medicine, has compiled summaries of several areas of the research on the biologic and health effects of exposure to RFR and ELF EMF. His sets of abstracts which cover the period from 1990 to 2017 constitute a comprehensive collection of this research.
- Dr. Lai finds that the preponderance of the research has found that exposure to RFR or ELF EMF produces oxidative stress or free radicals, and damages DNA. Moreover the preponderance of RFR studies that examined neurological outcomes has found significant effects.
- The evidence for DNA damage has been found more consistently in animal and human (in vivo) studies than in studies of cell samples (in vitro).
- The abstracts can be downloaded from the BioInitiative web site[15].
- Top Line Results Radiofrequency radiation:
    - 90% (n=180) of 200 oxidative stress (or free radical) studies report significant effects.
    - 64% (n=49) of 76 DNA comet assay studies report significant effects.
    - 54% (n=25) of 46 in vitro studies report significant effects. 80% (n=24) of 30 in vivo studies report significant effects.
    - 72% (n=235) of 325 neurological studies report significant effects.
- Extremely low frequency electromagnetic fields:
    - 87% (n=162) of 186 oxidative stress (or free radical) studies report significant effects.
    - 74% (n=34) of 46 DNA comet assay studies report significant effects.
    - 68% (n=21) of 31 in vitro studies report significant effects.
    - 87% (n=13) of 15 in vivo studies report significant effects

VII. GEOLOGY & SOILS

- How much soil will be moved?
- Will any topsoil be removed off-site?
- Previous verbal reports allege that top soil was removed off-site in large amounts from one or more of the large solar projects built near Mount Signal which could impact potential for any future return of the site to farming use.

VIII.GREEN HOUSE GAS EMISSIONS:

[15] http://bioinitiative.org/research-summaries/

- See Energy comments above regarding life cycle green house gas emissions from cradle to grave for the PV solar panels, batteries, and other equipment that will be used, along with full accounting of manufacturing and transport of all project related materials.
- This section must address the increased Particulate Matter from grading and Green House Gas emissions from the use of diesel equipment, and potential to use less polluting options like natural gas, and other project GHG sources noted in these comments.
- The gen-tie line and project components will generate off-gassing and electrical pollution that radiates through the air and through increased ground currents.
- Sulfur hexafluoride (SF6)[16] , an extremely potent Green House Gas used in electrical equipment. What are the impacts and proposed alternatives and mitigation?
- Installation, maintenance, and decommissioning and leakage from SF6 containing GIE.11 Closed-pressure equipment is the category of GIE that is the most susceptible to SF6 emissions. Emissions associated with sealed-pressure equipment mostly occur during the manufacturing process and at disposal. Below is an overview of potential sources of SF6 in transmission and distribution equipment, focusing on closed-pressure equipment. At the disposal stage, all equipment can release SF6. Therefore, proper handling, storage, and disposal procedures are critical to reduce emissions of SF6 into the atmosphere."
- **According to the EPA's Overview of SF6 Emissions Sources and Reduction Options in Electric Power Systems (2018)[17],** *"Potential sources of SF6 emissions occur from 1) losses through poor gas handling practices during equipment installation, maintenance, and decommissioning and 2) leakage from SF6 -containing GIE."*

IX. HAZARDS & HAZARDOUS MATERIALS

- ***Section a) should be changed from Less than Significant to Potentially Significant due to the proposed full use of the Battery Energy Storage System that represents a serious hazard and the potential for release of hazardous materials and toxic smoke during batter fires.***
- How many tons of batteries will be required for the 40 MW BESS?
- See comments on battery fires below. Battery fires can result in toxic smoke and melted hazardous materials pooling on the ground and potentially moving off-site.
- Studies have shown the heavy metals in solar panels — namely lead and cadmium — can leach out of the cells and get into groundwater, as well as affect plants. These metals also have a record for detrimental effects on human health.[18]
- **Cleaning after Solar Panels: A Circular Outlook**[19]
  A. Serasu Durana, Atalay Atasub and Luk N. Van Wassenhoveb
  ***aHaskayne School of Business, University of Calgary, Calgary, Canada; b. Technology and Operations Management Area, INSEAD, Fontainebleau, France**
  - (Excerpt:)) "Yet, a darker future for solar technology looms if we fail to adopt a circular economy outlook by considering the entire life cycle of solar panels. There are direct consequences when these products reach the end of their lives. Their complex

[16] http://climate.columbia.edu/files/2012/04/GNCS-SF6-Factsheet.pdf
[17] https://www.epa.gov/sites/production/files/2018-08/documents/12183_sf6_partnership_overview_v20_release_508.pdf
[18] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5607867/
[19] See page 2-3: https://drive.google.com/file/d/1CeYskmVtIQ8-WBnOJtJR-Ig2808nKY0S/view

composition (e.g., the ever-growing panel sizes and Ethylene Vinyl Acetate (EVA) encapsulated glass/metalmix) implies substantial challenges in creating circular solutions. Meanwhile, economic incentives are aligning to encourage customers to trade their existing panels for newer, cheaper, more efficient models. That makes it nearly impossible to imagine a strong market for used solar panels. The products must therefore be recycled. However, the availability of environmentally or economically effective recycling infrastructures and technologies for solar panels is very limited (McDonald and Pearce 2010; Sica et al.2018). It is not difficult to predict that their fate will be in landfills or incineration…"

- Section g) should address an access route from Ward Road to the substation and BESS, instead of having to access that area from planned access along Best Road.
- The main access should be from Ward Road instead of Best Road to reduce impacts to adjacent residents during construction.

X. HYDROLOGY & WATER QUALITY:

- One concern is the potential for hazardous materials to leach out of the installed or discarded solar panels and flushed from the project site into the drains during rain events.
- In the event the project site is eventually returned to agriculture use will the water availability for growing food and fiber still be there?
- Pegex Hazardous Waste Experts[20]: (excerpt)
    - **An Inconvenient Truth: Solar Panels Wear Out and They're a Potent Source of Hazardous Waste.** Basically, there are two kinds of solar panels. Each must be recycled in its own peculiar way.
    - **Silicon-based panels** are more common. Recycling requires disassembly in order to separate aluminum from glass. Treatment of what remains begins in a thermal processing unit where it's cooked to 500°C (932° F)—and that's just the start.
    - **Thin-film solar panels** require even more radical processing. They're shredded and mechanically hammered to ensure that no one particle is bigger than 4to5mm. Both solids and liquids remain, which require separation and further exotic treatments.

XI. LAND USE & PLANNING

- Project is NOT located within or near the existing Renewable Energy Overlay Zone[21]
- Project represents conflicts with adjacent farming, residences, and horse boarding / training facility.
- ***We strongly object to conversion of productive farmland to solar energy / battery storage facility adjacent to our own farmland and employee housing***.
- ***We oppose the proposed General Plan Amendment and Zone Change will result in an unnecessary conflict and will serve to encourage more solar conversion of productive land in the area.***

[20] https://www.hazardouswasteexperts.com/solar-panels-wear-out-hazardous-waste/
[21] https://icpds.maps.arcgis.com/apps/Viewer/index.html?appid=c6fd31272e3d42e1b736ce8542b994ae

- Imperial County has already converted tens of thousands of acres of land for industrial solar projects.

XII. MINERAL RESOURCES: No comment

XIII. NOISE

- ***Sections a) and b) should be changed from Less Than Significant to Potentially Significant Impact, especially for chronic operational noise impacts for adjacent residences and the horse facility.***
- Power conversion equipment, inverters (DC to AC), transformers, switchgears, PV module tracking motors, HVAC units and battery energy storage systems, and power lines, all make noise; complicated noise.
- BESS are fairly new and the impacts not well recognized or understood. With all the AC required to keep them cool, there may be unpredicted noise / vibration impacts.
- **Solar Panels Create Noise Nuisance in Edgartown, Vineyard Gazette, by Olivia Hull (9-25-14)**[22]
    - 
    - **<u>Excerpts -emphasis added:</u>**
    - Smith Hollow is a quiet neighborhood in Edgartown where the ambient sounds include distant traffic and breeze moving through the trees.
    - But this past summer, the installation of a new municipal solar array added a new sound to the mix: incessant humming that all but drowns out the other sounds at some Smith Hollow residences.
    - As soon as the solar project went live, inverters, the part of the system that converts direct current from the sun to alternating current, began emitting noise on sunny days. Neighbors complained, and the town hired an expert to investigate.
    - ***The inspection revealed that the sound coming from the inverters exceeds ambient sounds in all eight octaves by a significant margin, according to a report discussed by the town selectmen Monday.***
    - "The sound from the inverters is clearly in violation of the Mass. DEP Noise Policy, and also constitutes a noise nuisance, in my opinion, based on the sound level measurements reported here," wrote Lawrence G. Copley, a sound engineer, in the noise assessment he presented to the town.

[22] https://vineyardgazette.com/news/2014/09/25/solar-panels-create-noise-nuisance-edgartown

- Upon reading another paper**, Harmonics and Noise in Photovoltaics: PV Inverter and the Mitigation Strategies**[23], even a layman realizes that inverters generate high frequency noise of various sorts and complexities, often with weird harmonics.
- In another article the German inverter manufacturer SMA Solar Technology describes its experience sleuthing out persistent inverter noise emissions, analyzing[24]:
    - structure-borne noise transfer paths
    - transfer of airborne noise and its effects
    - noise caused by vibrations
    - Resonance frequency testing
- Project components will also be subject to wind generated noise that results in potentially significant rattling of P V Modules, slatted chain link fencing and more.
    - **Sample Noise Emission Values of a three phase commercial solar inverter**
    - The table below is from the NOISE REPORT ODOT Solar Highway Project: West Linn Site Clackamas County, it shows the dBA noise level of commercial inverters at the Clackamas solar project. Understanding the dBA noise from a commercial inverter is an important component in siting an inverter at solar project.[25]

Table 3. Inverter Noise Levels at Various Distances with Four Inverters at IM7

Location of Source (number of inverters)	Noise Level at 50 Feet	Receiver Location	Distance from Source to Receiver	Noise Level from Inverters at Receiver
	dBA		(feet)	Leq/dBA
I10 (3)	64	RM6	800	40
IM5 (3)	64		360	47
IM7 (4)	65		2040	33
I10 (3)	64	RM8	1280	36
IM5 (3)	64		1800	33
IM7 (4)	65		216	52
I10 (3)	64	R11	224	51
IM5 (3)	64		544	43
IM7 (4)	65		1336	36

Note: Locations of inverter pads can be see on Figure 3.

- **Collector Substation**
    - Industry is well aware that along with the potential for electrical pollution to move off-site through the air and ground from solar project and substations, there is also the potential for substation noise to leave the site through air and ground pressure waves that can be perceived at distance.
- **Cautions and recommendations from the Electrical Engineering Portal[26] include the following:**
    - Substation Noise Sources to take into consideration:
    - Continuous audible sources Continuous radio frequency (RF) sources
    - Impulse sources
    - Equipment noise levels

[23] https://docplayer.net/17995775-Harmonics-and-noise-in-photovoltaic-pv-inverter-and-the-mitigation-strategies.html

[24] https://www.sma.de/en/partners/knowledgebase/reducing-noise-in-pv-power-plants.html
[25] https://electrical-engineering-portal.com/audible-substation-noise
[26] https://www.civicsolar.com/support/installer/articles/electrical-noise-emissions-solar-pv-inverter-charger

    - Attenuation of noise with distance
- **Noise Abatement Methods to take into consideration**:
    - Reduced transformer sound levels
    - Low-impulse noise equipment RF noise and corona-induced audible noise control
    - Site location
    - Larger yard area
    - Equipment placement Barriers or walls
    - Active noise cancellation techniques
- **Switchyard**
    - Switching gear could be a total of 60 feet tall and should require a height limit waiver.
    - Remotely controlled SCADA system (no local employee) also creates Radio Frequency Electromagnetic Radiation and potentially other emissions if the system is wireless.
- **Photos below were taken by Donna Tisdale (September 2013)** of solar project components located in south western Imperial County, south of I-8 and Hwy 98. They give an idea of actual visual conversion from previously productive farmland/open space into industrial scale solar clutter/sprawl.

XIV. POPULATION & HOUSING:

- An adverse impact on existing housing is the issue here. Noise and other project operational impacts may induce the abandonment of existing affordable homes and displacement of residents through no fault of their own.

XV. PUBLIC SERVICES

- Clear emergency contact signage should be required at all project access points that are accessible to the public so they can report any problems for this unmanned facility.
- Dozens of high profile battery storage fires have occurred in the last few months and years around the world.[27]
- See comments under Wildfire below.
- California passed SB 489 in 2015 to provide guidance for the safe disposal of defunct solar panels, designating them as universal waste. Universal waste cannot be trashed or landfilled in California[28]
- **Energy Storage Systems Fire Safety Concepts in 2018 IFC and IRC: Hazard Mitigation Analysis:**[29]
    - The HMA will evaluate the consequences of failure modes • Thermal runaway in a single battery array • Failure of the energy management system • Failure of ventilation system • Voltage surges on the primary • Short circuits on the load side of the batteries • Failure of the smoke or gas detection, fire suppression The fire code official is authorized to approve the hazardous mitigation analysis based on the HMA. <u>The HMA is a tool to address unknowns with new technologies</u>
- There have been numerous hazardous conditions generated by battery storage fires including major fires in Surprise AZ, Morris, Illinois and Tesla's Big Battery in Australia:

    - ***The Morris fire (above) forced thousands of people from their homes for several days.***

[27] https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/burning-concern-energy-storage-industry-battles-battery-fires-51900636
[28] https://www.hazardouswasteexperts.com/solar-panels-wear-out-hazardous-waste/
[29] https://www.iccsafe.org/wp-content/uploads/Energy-Storage-Systems-Fire-Safety-Concepts-in-the-2018-IFC-and-IRC.pdf

- **“June 29, 2021: U.S. EPA responded to the Morris Lithium Battery Fire in Morris, Illinois, to provide guidance and support to the Morris Fire Department**, the lead agency at the response. As of 6:30 p.m. on June 29, there were two U.S. EPA responders on-site, supported by eight contractors to set up a network of fixed and roaming air monitors around the perimeter of plume and within residential areas. As the wind direction changes, the roaming monitors are moved to follow the plume and to provide real-time data to the responders. U.S. EPA has five AreaRAE Pro monitors, five DustTrak monitors and multiple air samplers available for site use. The air monitoring network looks for volatile organic compounds (VOCs), oxygen (O2), hydrogen sulfide (H2S), carbon monoxide (CO), lower explosive limit (LEL), and particulates in coordination with the Illinois Civil Support Team. Because lithium battery fires can generate flouride gas emissions, U.S. EPA is also monitoring for hydrogen flouride (HF). U.S. EPA is currently evaluating the data received. Current data have not shown levels above Agency for Toxic Substances and Disease Registry (ATSDR) and Illinois Department of Public Health (IDPH) thresholds. This will be further evaluated.”[30]

 [31]

- ***The July 29, 2021 Tesla battery storage fire in Australia (photos above& below) required 30 fire rigs and 150 firefighters over several days*:**
    - (excerpt) “…A toxic blaze at the site of Australia's largest Tesla battery project is set to burn throughout the night. The fire broke out during testing of a Tesla megapack at the Victorian Big Battery site near Geelong. A 13-tonne lithium battery was engulfed in flames, which then spread to an adjacent battery bank. More than 150 people from Fire Rescue Victoria and the Country Fire Authority responded to the blaze, which has been contained and will be closely monitored until it burns itself out."If we try and cool them down it just prolongs the process," the CFA's Assistant Chief Fire Officer Ian Beswicke said."But we could be here anywhere from 8 to 24 hours while we wait for it to burn down…"[32]

[30] https://response.epa.gov/site/site_profile.aspx?site_id=15259
[31] ABC Screen Shot by Nick Hide/CNET https://www.cnet.com/news/tesla-battery-fire-renewable-energy-plant-australia/
[32] https://www.abc.net.au/news/2021-07-30/tesla-battery-fire-moorabool-geelong/100337488

- ***A toxic smoke warning was issued.***

XVI. RECREATION:

- Again, this project has the potential to adversely impact use and enjoyment of recreation opportunities at existing homes and the horse boarding / training facility on Best Road just south of the project site.

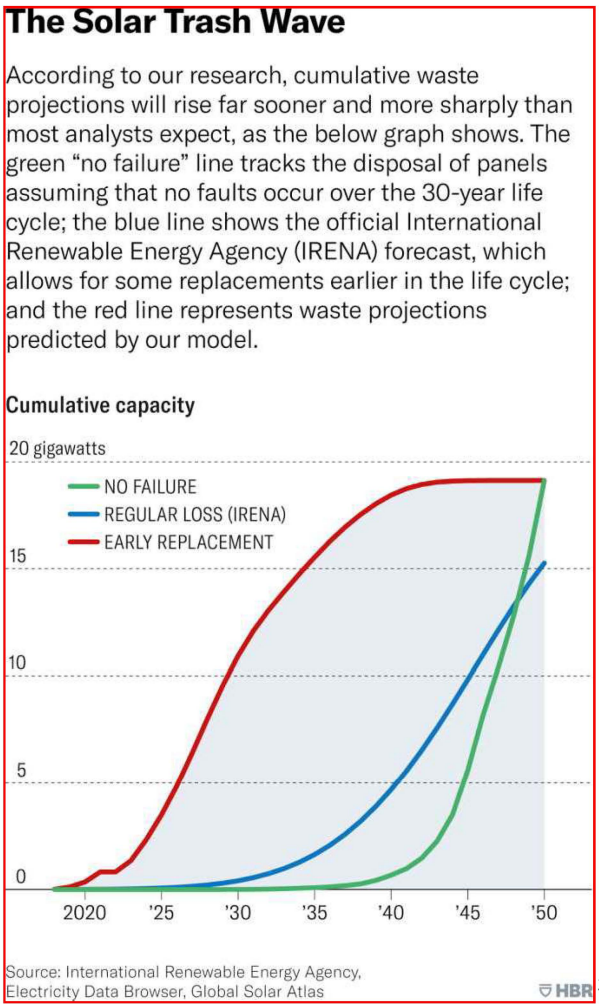
XVII.TRANSPORTATION

- Accommodation must be made for farm traffic during construction which will likely impact traffic on Best and Ward Roads during critical planting, harvesting, and other related work on adjacent farmland**.**
- Experience with construction of other large energy projects confirms adverse impacts to local road surface conditions which are already rough.
- The project developer should be required to repair / upgrade the road surface after construction is completed as mitigation.
- What is the required setback / easement from the railroad tracks?

XVIII. TRIBAL CULTURAL RESOURCES: No comments

XIX. UTILITIES & SERVICE SYSTEMS

- ***Section d) should be changed from Less than Significant to Potentially Significant Impact due to undisclosed end of life destination for solar panels and batteries.***
- Disposal of potentially hazardous solar panels and batteries is controversial and unlawful in California.
- Recycling facilities must be developed or developer take back agreements must be included in permitting process.
- See comments on IX Hazards & Hazardous Materials above.



[33]

- The graphic above was sourced from the Harvard Business Review (6-18-21) **The Dark Side of Solar Power by Atalay Atasu, Serasu Duran, and Luk N. Van Wassenhove**:
- In addition to the proposed substation and Battery Energy Storage System, we request that any microwave towers, inverters, and transformers be placed as far away as possible from our property and two existing homes.
- Fiber optic is preferred over microwave tower to reduce microwave radiation impacts.

XX. WILDFIRE

- ***Section c) should be changed from Less than Significant to Potentially Significant Impact due to the required installation and full time operation of the associated BESS infrastructure that "…may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment"***.

[33] https://hbr-org.cdn.ampproject.org/v/s/hbr.org/amp/2021/06/the-dark-side-of-solar-power?amp_gsa=1&amp_js_v=a6&usqp=mq331AQFKAGwASA%3D#amp_tf=From%20%251%24s&aoh=16241641204897&csi=0&referrer=https%3A%2F%2Fwww.google.com&ampshare=https%3A%2F%2Fhbr.org%2F2021%2F06%2Fthe-dark-side-of-solar-power

- The Brawley Solar project has the potential to ignite wildfires through attraction of lightning strikes and/or through electrical faults or other malfunctions in project components resulting in potentially hazardous fumes and waste.
- Battery storage represents additional sources of wildfire ignition and hazardous / toxic fumes generated by burning lithium ion batteries and thermal runaway events.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

- ***Section b) should be adjusted to include the following impacts: Noise; Recreation; Housing; Wildfire and Energy as discussed in these comments.***

The Overall Site Plan provided in the Initial Study / NOP is fuzzy and hard to read. A better copy that is clearer should be provided in the Draft EIR.

Thank you for consideration of these comments…

# # #

VISUAL IMPACT ASSESSMENT FOR THE BRAWLEY SOLAR PROJECT IMPERIAL COUNTY, CALIFORNIA

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SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. (Chambers Group) was retained by ORNI 30, LLC (ORNI) to prepare this technical report assessing the current surrounding conditions and to describe potential changes to the landscape resulting from the Brawley Solar Energy Facility (Project) development. The Project would be located on six privately owned parcels covering approximately 227 acres in Brawley, Imperial County (Figure 1).

The 40 Megawatt (MW)/160 Megawatt hour (MWh) photovoltaic (PV) solar farm and 40 MW/160 MWh battery energy storage system (BESS) 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 3,809 PV panels in 28 strings. The panels would be oriented from east to west for maximum exposure and the foundation would be designed based on soil conditions. The PV panels 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 Project 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.

The Project would connect to a switchyard located in the southeast corner Project site and then be routed through the BESS building for energy storage. Power would then be transferred to the North Brawley Geothermal Power Plant substation via a 1.8mile-long double circuit 13.8 and 92 kV gen-tie line with 66-foot-high poles to interconnect to the Imperial Irrigation District (IID) at the North Brawley 1 substation located at Hovley Road and Andre Road, southwest of the Project site. The transmission line would span the New River. A 12-inch diameter conduit railroad undercrossing would connect the PV arrays from the western side of the railroad tracks to the inverters on the eastern side.

SECTION 2.0 – EXISTING CONDITIONS

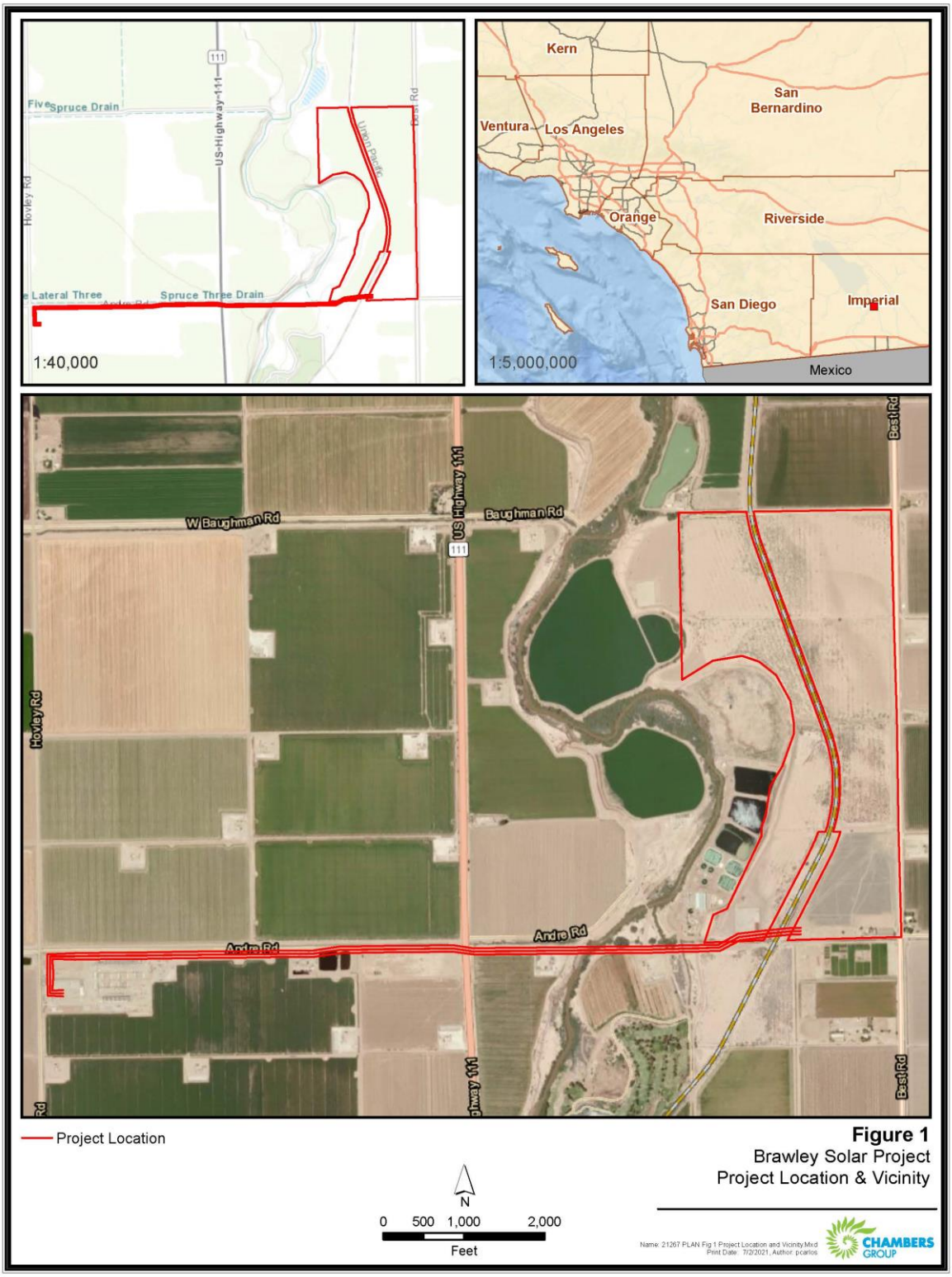
The Project is located at 5003 Best Ave, Brawley, California on six privately owned parcels: Assessor's Parcel Numbers (APNs) 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006 (Project site) as shown in Figure 1. Imperial County identifies the land use of the Project site as Agriculture and zoning as General Agricultural (A-2-G; County 2020). Currently the Project site contains alfalfa fields within different levels of harvest. North and east of the Project site is undeveloped agricultural land.

The Project site is approximately one mile north from the City of Brawley's jurisdictional limit. Brawley is relatively central 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. Beyond miles of agricultural land, the 45-mile-long and 20-mile-wide Salton Sea lies northwest of the Project site. The elevation at the Project site is approximately 145 feet below mean sea level. 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 above mean sea level.

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 residences and land uses. North of the Project site is agricultural land. Along the eastern edge of the Project site there are two residences and agricultural land. South of the Project site is a mixture of agricultural land and dirt lots used for staging activities. The City of Brawley Wastewater Treatment Plant is located along the western edge of 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 Quail Brush Scrub and Bush Seepweed, are widespread on undeveloped and unfarmed lands, and ruderal vegetation is along waterways associated with IID canals (Chambers 2021). Individual residences, transmission lines, transportation corridors (including roads and railroads), and agricultural equipment are discernable in the foreground (within 0.25 mile) and middle ground (0.25 to 3-5 miles away) views throughout the area. They are identifiable by their vapor plumes. These views to the west from the Project site are backdropped by the Coyote Mountains and Fish Creek Mountains. Views to the east are backdropped by the Chocolate Mountains.

Figure 1: Project Location and Vicinity Map



SECTION 3.0 – METHODOLOGY

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, Chambers Group 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 POWER Engineers, Inc. (POWER) on March 4, 2021 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 and the County. 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 four KOPs in relation to the Project site are presented in Appendix A.

During the field survey, the view from each KOP was photographed using a 35-millimeter, 30-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.

SECTION 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. See Figure 1 in Appendix A for KOP locations shown in the Viewpoint Map, as well as existing and simulated images included in Viewpoint 1, 2, 3, and 4.

4.1 VIEW FROM NORTH (N)BEST AVENUE (AVE) (KOP 1)

4.1.1 Existing View

KOP 1 is located along N Best Ave, at the northeast corner of the Project site. The view from KOP 1 is to the southwest, toward the proposed Project's solar arrays (Viewpoint 1). This viewpoint represents views from an identifiable point along the most proximate roadway, where topography allows visibility of the Project site. Additionally, the viewpoint represents the residents located at 5210 N Best Ave in Brawley, CA. The view is characterized by flat agricultural land to the west, south, and east with the nearby residence to the northeast. The Coyote Mountains and Fish Creek Mountains are visible far off to the south. The view of the Project site is mostly unobstructed except for utility poles traveling along the western side of N Best Road.

4.1.2 View with Project

Viewpoint 1 shows the view from KOP 1 with the proposed Project simulated. The solar arrays and the security fencing would be the most prominently visible portion of the Project from this location. As conceptually shown in the simulation, the Project would appear as a comparatively dark, horizontal bar across the majority of the view. The overall effect shown in Viewpoint 1 is the relatively small degree of contrast the Project would have with its broader surroundings, which includes views of the Coyote Mountains and Fish Creek Mountains. Solar arrays would not substantially obscure the mountain skyline from this vantage point.

4.2 VIEW FROM N BEST AVE AND WARD ROAD (KOP 2)

4.2.1 Existing View

KOP 2 is located at the intersection of N Best Ave and Ward Road, at the southeast corner of the Project site. The view from KOP 2 is to the northwest, toward the proposed Project's solar arrays, BESS, and substation (Viewpoint 2). This viewpoint represents views from an identifiable point along the most proximate roadway, where topography allows visibility of the Project site. Additionally, the viewpoint represents the residents located at 5000 N Best Ave and 5002 N Best Road in Brawley, CA. The view is characterized by flat agricultural land to the north; an abandoned residence and fenced corral to the west; a vacant dirt lot to the south; and the nearby residences to the northeast. Vegetation along the New River is visible to the west and the Chocolate Mountains are visible far off to the north and west. The view of the Project site is partially obstructed by vegetation along the old corral and utility poles traveling along the western side of N Best Road.

4.2.2 View with Project

Viewpoint 2 shows the view from KOP 2 with the proposed Project simulated. The solar arrays and the security fencing would be the most prominently visible portion of the Project from this location. With demolition of the abandoned residence and corral, the Project's BESS and substation are also visible from KOP 2 to the west. As conceptually shown in the simulation, the Project would appear as a generally uniform dark line across the view. The overall effect shown in Viewpoint 2 is the relatively small degree of contrast the Project would have with its broader surroundings, which include views of the Chocolate Mountains. The BESS, substation, and solar arrays would not substantially obscure the mountain skyline from this vantage point.

4.3 VIEW FROM NORTH END OF DEL RIO COUNTRY CLUB AND GOLF COURSE (KOP 3)

4.3.1 Existing View

KOP 3 is located along the Union Pacific railroad tracks on the northwest end of Del Rio Country Club and Golf Course, approximately 0.25 mile from the Project site. The view from KOP 3 is to the north, toward the proposed Project's solar arrays, BESS, substation, and gen-tie line. This viewpoint represents golfers and staff at Del Rio Country Club, where topography allows views of the Project site, as well as views from the Union Pacific railway line. The view is characterized by flat, undeveloped land with sparse vegetation to the north and northeast, agricultural land to the east, and the landscaped golf course to the west. The railroad tracks travel north through the middle of the view, with the Chocolate Mountain Range visible far off to the north. The view of the Project site is unobstructed.

4.3.2 View with Project

Viewpoint 3 shows the view from KOP 3 with the proposed Project simulated. The gen-tie structures 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, traveling from east to west approximately 1.75 miles. While appearing as new and highly visible features, the transmission structures would relate to the numerous lines visible throughout the landscape. They would also occupy a relatively narrow portion of the view to the north from KOP 3.

The substation for the proposed Project has not yet been designed. However, the facility shown in Viewpoint 3 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 3, 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.

4.4 VIEW FROM STATE ROUTE (SR) 111 AND ANDRE ROAD (KOP 4)

4.4.1 Existing View

KOP 4 is located at the corner of SR 111 and Andre Road, along the gen-tie line route. The view from KOP 4 is to the east, toward the proposed Project's gen-tie line, BESS, substation, and solar arrays. This viewpoint represents views from an identifiable point along a well-traveled roadway in the County, where topography allows visibility of the Project site. The view is characterized by mainly flat agricultural land to

the north and south. The City of Brawley Wastewater Treatment Plant is within the northern portion of the view and a dirt access road leads to an industrial dirt lot with pipelines directly east of the view. The Chocolate Mountain Range is visible far off to the east. The view of the Project site is partially obstructed by the City of Brawley Wastewater Treatment Plant, utility poles, and small amounts of vegetation in the foreground.

4.4.2 View with Project

Viewpoint 4 shows the view from KOP 4 with the proposed Project simulated. The gen-tie structures 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 southern portion of the view, traveling from east to west approximately 0.5 mile. While appearing as new and highly visible features, the transmission structures would relate to the numerous lines visible throughout the landscape. They would also occupy a relatively narrow portion of the view to the south from KOP 4.

As simulated, views of the substation and BESS would be visible in the distance from KOP 4. These structures would relate to the nearby industrial features in the landscape, including the nearby pipelines. The solar arrays would appear as a comparatively dark, horizontal bar across the remainder of the view. No Project component would substantially obscure or appear above the mountain skyline from this vantage point.

SECTION 5.0 – GLARE ANALYSIS

The Federal Aviation Administration (FAA) has expressed concern for glare resulting from PV systems potentially causing distractions to pilots. For this reason, the FAA has asked solar developers to perform a glare hazard analysis to evaluate and document potential occurrences of glare. Proposed solar operations were studied by POWER Engineers (POWER) for two landing approaches at the Brawley Municipal Airport. In addition to airport operations, POWER analyzed potential glare that would cause distraction to nearby motorists and structures. The Project's Glare Hazard Analysis is included in Appendix B of this document.

As detailed in Appendix B, POWER identified and analyzed the following sensitive viewers for glare:

- Brawley Municipal Airport – 2-mile final approaches analyzed at 3% slope
    - Runway 8 Final Approach:
        - Distance from Project: 1.57 miles
        - Heading: 90 degrees true
        - Runway Elevation: -128.88 feet
        - Final Approach Slope: 3.0 degrees
    - Runway 26 Final Approach:
        - Distance from Project: 1.55 miles
        - Heading: 275 degrees true
        - Runway Elevation: -134.77 feet
        - Final Approach Slope: 3.0 degrees
- Structures – Single point analysis was completed for nearby residences and structures.
    - An aerial survey using Google Earth was completed to identify residences/structures within one mile of the project boundary.
    - Distance from Project: Up to one mile
    - Viewer Height: 10 feet above grade
- Major Roadways - Roadways were analyzed up to one mile from the project location at a viewer height of 10 feet to account for worse-case scenario truck traffic.
    - N. Best Avenue
    - Highway 111
    - Ward Road
    - Rutherford Road

POWER used GlareGauge licensed by ForgeSolar. The GlareGauge uses Solar Glare Hazard Analysis Tool technology and is a web-based glare assessment tool allowing input of viewer position, solar facility location, solar technology, and elevation data. The GlareGauge provides a quantified assessment of when and where glare may occur throughout the year from a solar installation, as well as identifying the potential effects on the human eye when glare does occur. Glare was analyzed at one-minute intervals throughout the entire year to determine when and where glare may be visible to residences, motorists, and pilots. The GlareGauge meets FAA glare analysis requirements.

After review of the GlareGauge tool analysis, POWER found no potential glare reported from the proposed solar operations due to the orientation of the PV panels, the 5 degree stow angle and the distance from sensitive viewers to the Project. When the sun is lowest in the sky, nearing sunrise and sunset, the 5 degree stow angle redirects potential glare up and away from sensitive viewers. Based on these findings,

it was concluded that the Brawley Solar Energy Facility Project will have low potential for glare impact on airport operations and will not cause distraction to nearby residences or motorists.

POWER's independent analysis using the GlareGauge concluded the following:

- Brawley Municipal Airport – Runways 8 and 26 reported no Glare.
- Structures – Nearby residences and structures reported no Glare.
- Motorists – Two-way route receptors reported no Glare.

A detailed description of the GlareGauge Analysis Report is in Appendix B.

SECTION 6.0 – 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?

Less than Significant 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. According to the County General Plan, the closest scenic resource is the Salton Sea approximately 11 miles northwest of the Project site (County 2015). Views from elevated areas near the Project site 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 all KOPs, 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, less than significant 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 are 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 25 miles south of Bombay Beach. Therefore, no impacts to scenic resources within any 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. The views from KOPs 1 and 2 show the Project's solar arrays and the security fencing most prominently, which would appear as a comparatively dark, horizontal bar across the view. The overall effect of the Project from these KOPs is relatively small degree of contrast the Project would have with its broader surroundings and a small interruption of views of the surrounding mountains. In the view from KOPs 3 and 4, new transmission structures that would be part of the Project's interconnection would appear large in scale; however, the structures would be comparable in size and appearance to other structures visible throughout the surrounding landscape, including multiple existing transmission lines. 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, and the City of Brawley Wastewater Treatment Plant. 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 nighttime lighting and therefore would not be a source of substantial light in the area outside of the Project site. POWER produced a Glare Hazard Analysis for the Project (Appendix B). It concluded that sensitive viewers near the Project, including residences, a nearby golf course, major roadways, and approach slopes associated with the Brawley Municipal Airport, would experience no glare effects from the Project. These effects would be less than significant.

SECTION 7.0 – CONCLUSIONS

The Brawley Solar Energy Facility would result in the construction of solar arrays, a substation, a BESS, and a gen-tie line on a currently undeveloped site just east of the SR 111 corridor. In views from publicly accessible locations, the proposed Project would be visible and identifiable, though it would not substantially alter existing visual character (see discussion above). Further, such views of the Project would be limited in duration for drivers along SR 111. In most views, much or all of the Project would be absorbed into the broader landscape. 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, geothermal facilities, utility infrastructure, and other mechanized or industrial-appearing development.

SECTION 8.0 – REFERENCES

Chambers Group, Inc. (Chambers)

2021 Biological Technical Report for the Brawley Solar Project.

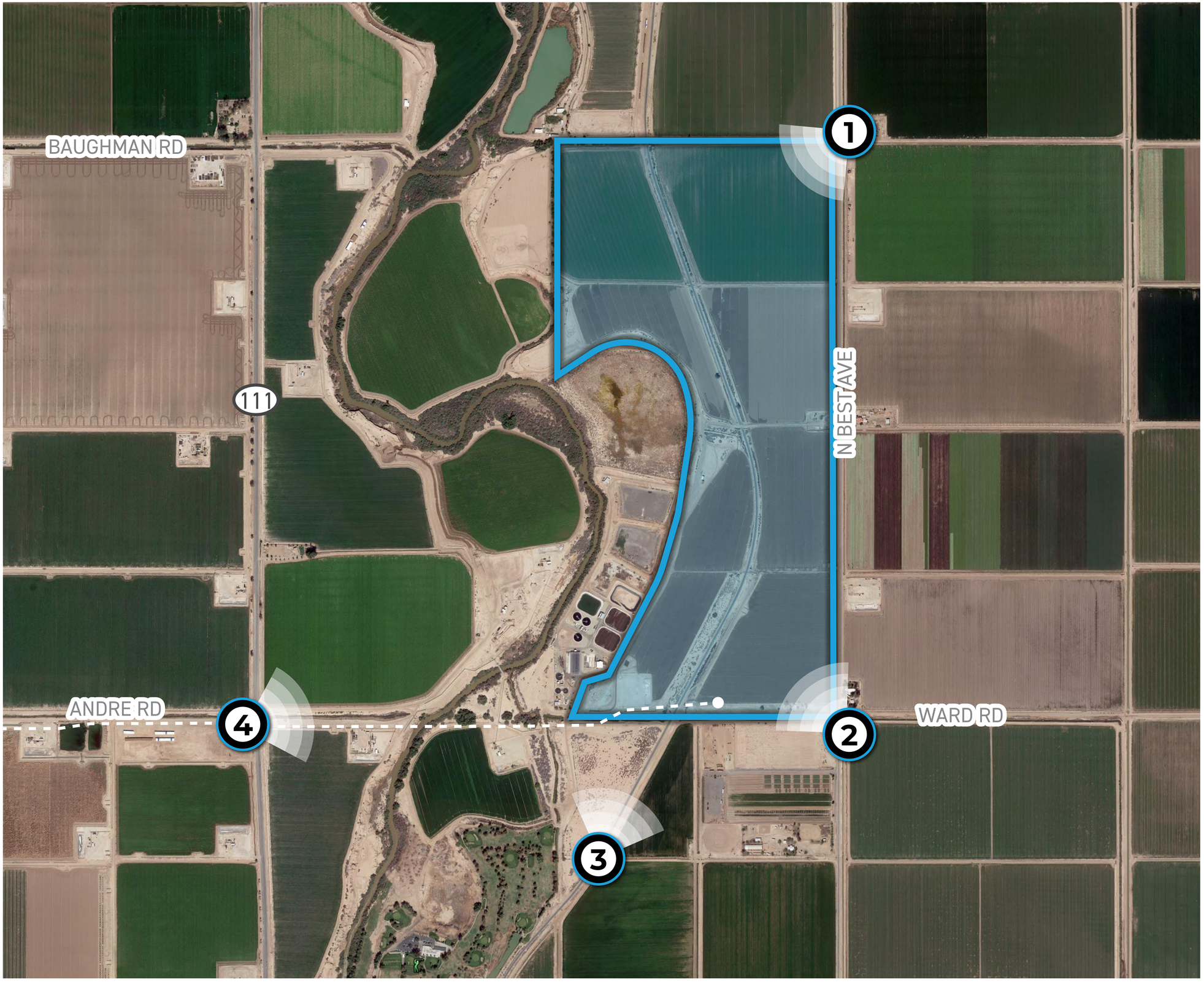
County of Imperial (County)

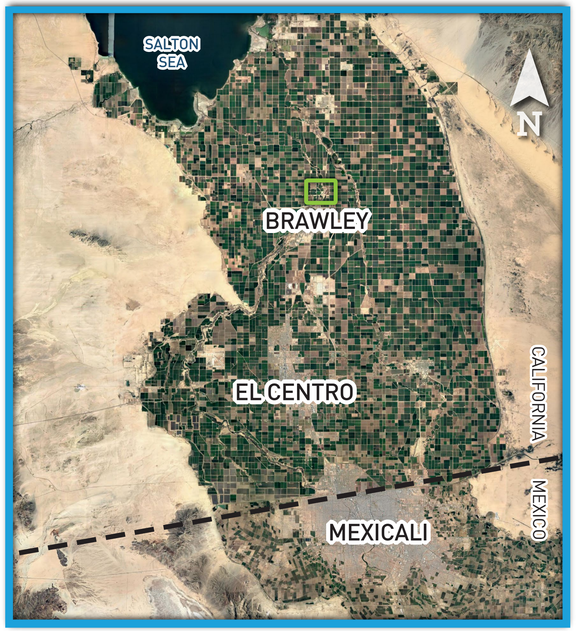
2008 Imperial County General Plan – Circulation and Scenic Highways Element. Available online: https://www.icpds.com/assets/planning/circulation-scenic-highway-element-2008.pdf

APPENDIX A – VISUAL SIMULATIONS

BRAWLEY SOLAR
ENERGY FACILITY

VIEWPOINT MAP





- ① PHOTO VIEWPOINT
- LARGE MAP VIEW-AREA
- PROJECT AREA

CHAMBERS GROUP

PHOTO SIMULATIONS ARE FOR DEMONSTRATION PURPOSES ONLY. FINAL DESIGN IS SUBJECT TO CHANGE PENDING PUBLIC, UTILITY, AND REGULATORY REVIEW.

BRAWLEY SOLAR
ENERGY FACILITY

VIEWPOINT 1

DATE: 03/04/2021

TIME: 1:46 PM

DIRECTION: SOUTHWEST

1 PHOTO VIEWPOINT

PROJECT AREA

CHAMBERS GROUP

PHOTO SIMULATIONS ARE FOR DEMONSTRATION PURPOSES ONLY. FINAL DESIGN IS SUBJECT TO CHANGE PENDING PUBLIC, UTILITY, AND REGULATORY REVIEW.

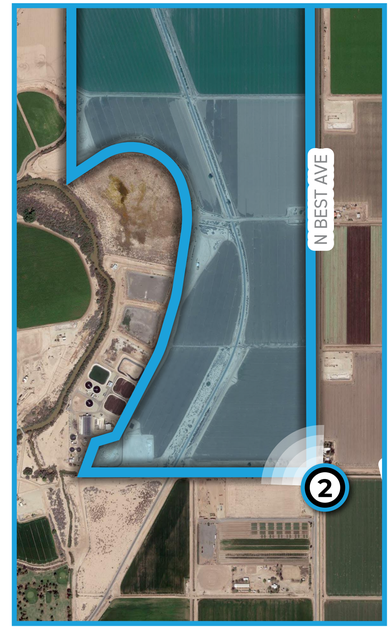
BRAWLEY SOLAR
ENERGY FACILITY

VIEWPOINT 2

DATE: 03/04/2021

TIME: 1:17 PM

DIRECTION: NORTHWEST



1 PHOTO VIEWPOINT

PROJECT AREA

CHAMBERS GROUP

EXISTING CONDITIONS

PROPOSED CONDITIONS

PHOTO SIMULATIONS ARE FOR DEMONSTRATION PURPOSES ONLY. FINAL DESIGN IS SUBJECT TO CHANGE PENDING PUBLIC, UTILITY, AND REGULATORY REVIEW.

BRAWLEY SOLAR
ENERGY FACILITY

VIEWPOINT 3

DATE: 03/04/2021

TIME: 1:23 PM

DIRECTION: NORTH

1 PHOTO VIEWPOINT

PROJECT AREA

CHAMBERS GROUP

EXISTING CONDITIONS

PROPOSED CONDITIONS

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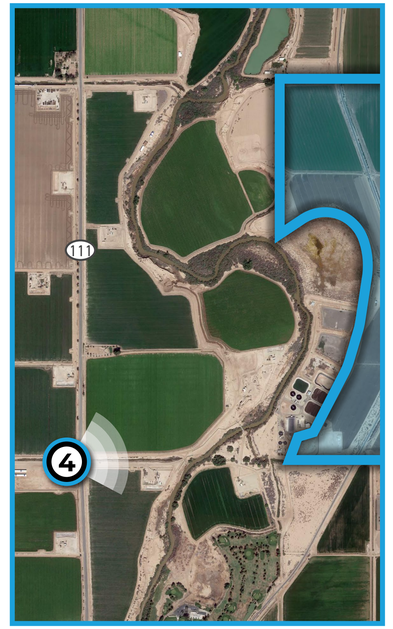
BRAWLEY SOLAR
ENERGY FACILITY

VIEWPOINT 4

DATE: 03/04/2021

TIME: 2:05 PM

DIRECTION: EAST



1 PHOTO VIEWPOINT

PROJECT AREA

CHAMBERS GROUP

APPENDIX B – GLARE HAZARD ANALYSIS

POWER ENGINEERS, INC.
2041 SOUTH COBALT POINT WAY
MERIDIAN, ID 83642 USA

PHONE 208-288-6100
FAX 208-288-6199

April 26, 2021

Victoria Boyd
Chambers Group
5 Hutton Center Drive Suite 750
Santa Ana, CA 92707

Subject: Glare analysis for the Brawley Solar Energy Facility in Brawley, Imperial County, California

Dear Ms. Boyd:

At your request, POWER Engineers Inc. (POWER) has evaluated the proposed Brawley Solar Energy Facility (Project) to ensure Federal Aviation Administration (FAA) compliance regarding hazardous solar glare in or around airports. POWER has also evaluated any potential glare that could cause distraction to nearby structures and motorists. This technical memo describes our findings.

Project Description – The proposed Project located in Brawley, California and will utilize single-axis tracking photovoltaic solar technology and produce up to 40 megawatts (MW) of energy (See Appendix A). This Glare Study was commissioned by Chambers Group and prepared for Imperial County, Brawley Municipal Airport officials and the FAA. Specifically, this study does the following:

- Identifies any sensitive viewers near the Project including residences, other structures, a nearby golf course, major roadways and approach slopes associated with the Brawley Municipal Airport.
- Characterizes typical glare behavior experienced from the solar project throughout the day and year.
- Evaluates when and where glare may be visible to structures, motorists and pilots on final approach.

Sensitive Viewers – The FAA has expressed concern for glare resulting from PV systems potentially causing distractions to pilots. For this reason, the FAA has asked solar developers to perform a glare hazard analysis to evaluate and document potential occurrences of glare. Proposed solar operations were studied for two landing approaches at the Brawley Municipal Airport. In addition to airport operations, POWER analyzed potential glare that would cause distraction to nearby motorists and structures (See Appendix A). POWER identified and analyzed the following sensitive viewers:

- **Brawley Municipal Airport** – 2-mile final approaches analyzed at 3% slope
    - **Runway 8 Final Approach**:

        - Distance from Project: 1.57 miles
        - Heading: 90 degrees true
        - Runway Elevation: -128.88 feet
        - Final Approach Slope: 3.0 degrees
    - **Runway 26 Final Approach**:
        - Distance from Project: 1.55 miles
        - Heading: 275 degrees true
        - Runway Elevation: -134.77 feet
        - Final Approach Slope: 3.0 degrees

- **Structures** – Single point analysis was completed for nearby residences and structures.
    - An aerial survey using Google Earth was completed to identify residences/structures within one mile of the project boundary.
    - Distance from Project: Up to one mile
    - Viewer Height: 10 feet above grade
- **Major Roadways** - Roadways were analyzed up to one mile from the project location at a viewer height of 10 feet to account for worse-case scenario truck traffic.
    - N. Best Avenue
    - Highway 111
    - Ward Road
    - Rutherford Road

Solar Technology – The Project proposes the use of single-axis tracking PV panels rotating around a north/south axis. Single-axis trackers are designed to maximize solar efficiency by tracking the east-west position of the sun throughout the day. Panels will utilize back-tracking after reaching the maximum tracking angle to reduce shading of adjacent panels (See Appendix B). Details of the solar technologies were provided by the Chambers Group and are described below:

- Tracking: Single-axis Tracking
- Tracking Axis Orientation: 180 due south
- Maximum Tracking Angle: ± 52 Degrees
- Stow Angle: ± 5 Degrees
- Coating/Texture: Smooth glass with anti-reflective (AR) coating
- Mount Height: 5 feet above grade

Glare Analysis – POWER used GlareGauge licensed by ForgeSolar. The GlareGauge uses Solar Glare Hazard Analysis Tool technology and is a web-based glare assessment tool allowing input of viewer position, solar facility location, solar technology, and elevation data. The GlareGauge provides a quantified assessment of when and where glare may occur throughout the year from a solar installation, as well as identifying the potential effects on the human eye when glare does occur. Glare was analyzed at one-minute intervals throughout the entire year to determine when and where glare may be visible to residences, motorists, and pilots. The GlareGauge meets FAA glare analysis requirements.

Results – After review of the Glare Gauge tool analysis, POWER found no potential glare reported from the proposed solar operations due to the orientation of the PV panels, the 5 degree stow angle and the distance from sensitive viewers to the Project. When the sun is lowest in the sky, nearing sunrise and sunset, the 5 degree stow angle redirects potential glare up and away from sensitive viewers. Based on these findings, it is POWER's professional opinion that the proposed Brawley Solar Energy Facility Project will have low potential for glare impact on airport operations and will not cause distraction to nearby residences or motorists.

POWER's independent analysis using the GlareGauge concluded the following:

- Brawley Municipal Airport – Runways 8 and 26 reported no Glare.
- Structures – Nearby residences and structures reported no Glare.
- Motorists – Two-way route receptors reported no Glare.

For a detailed description of the GlareGauge analysis report please see Appendices C.

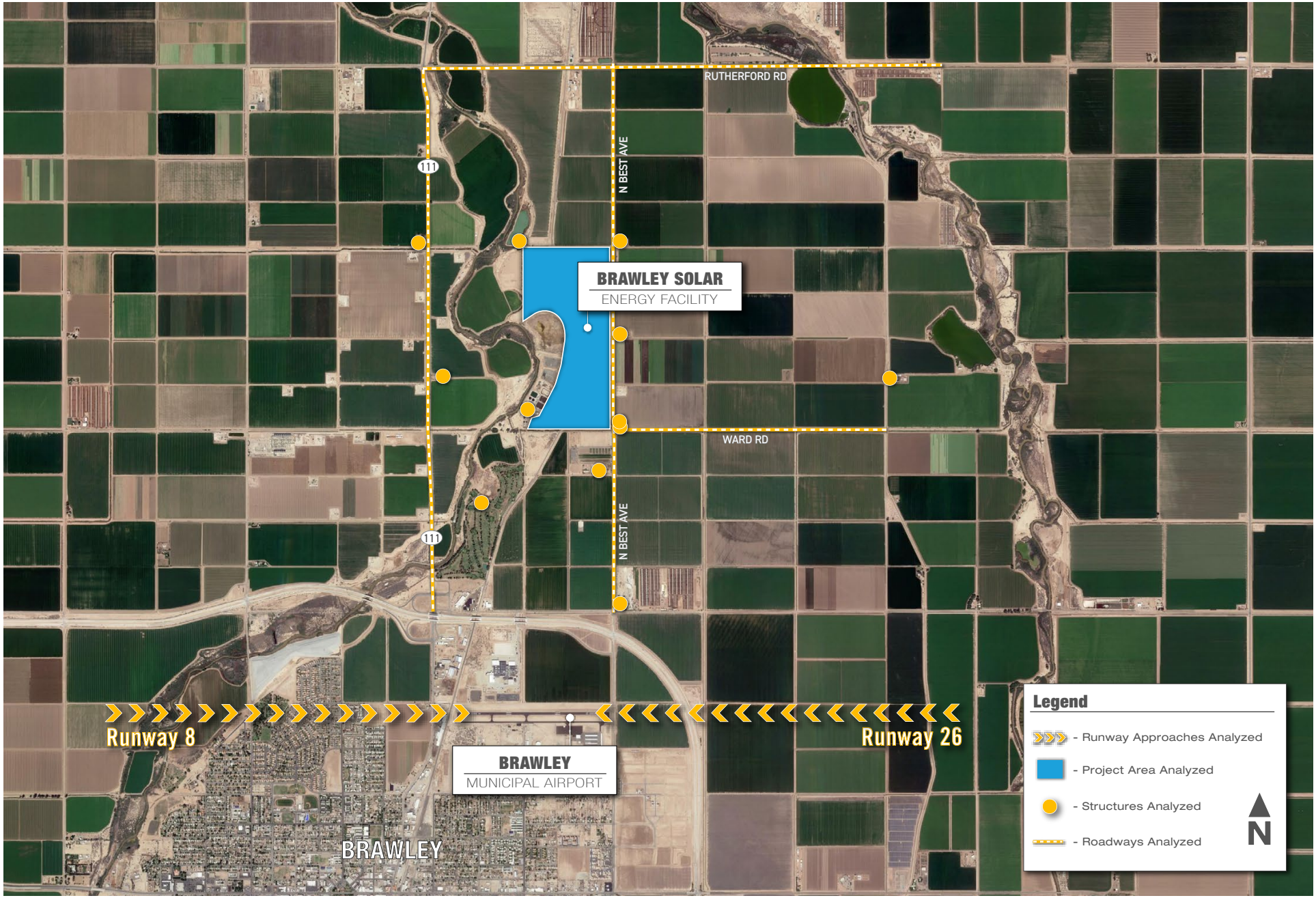
Please let me know if you have any questions as I would be happy to discuss.

Sincerely,

Visualization Specialist III

Enclosure: Appendix A – Project Location
Appendix B – Solar Behavior
Appendix C – GlareGauge output glare analysis

APPENDIX A PROJECT LOCATION



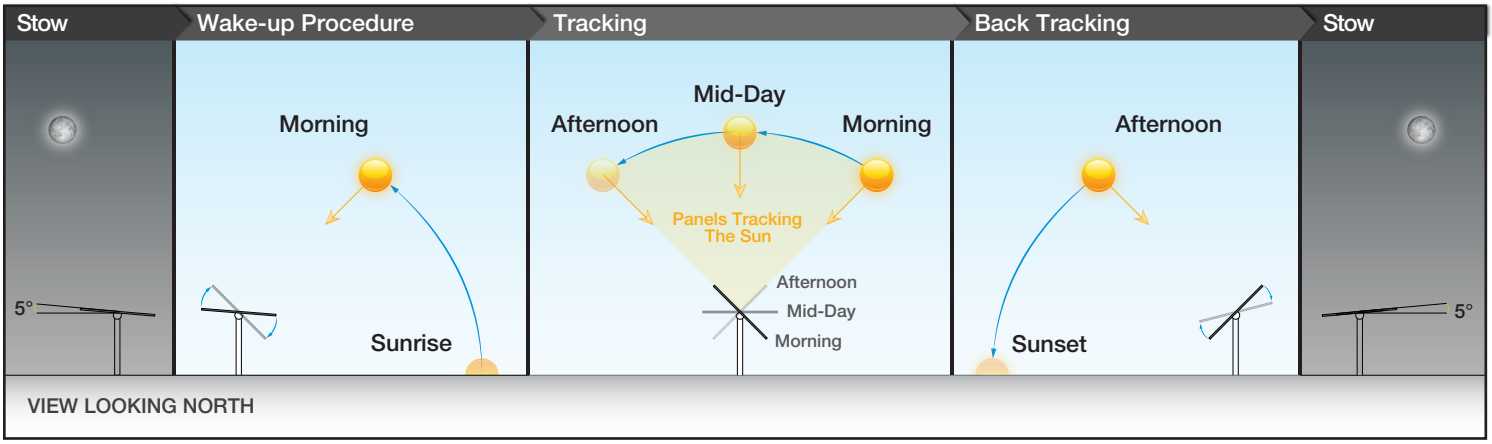
Prepared By,
POWER ENGINEERS

Brawley Solar Energy Facility Glare Analysis

Project Location - Appendix A

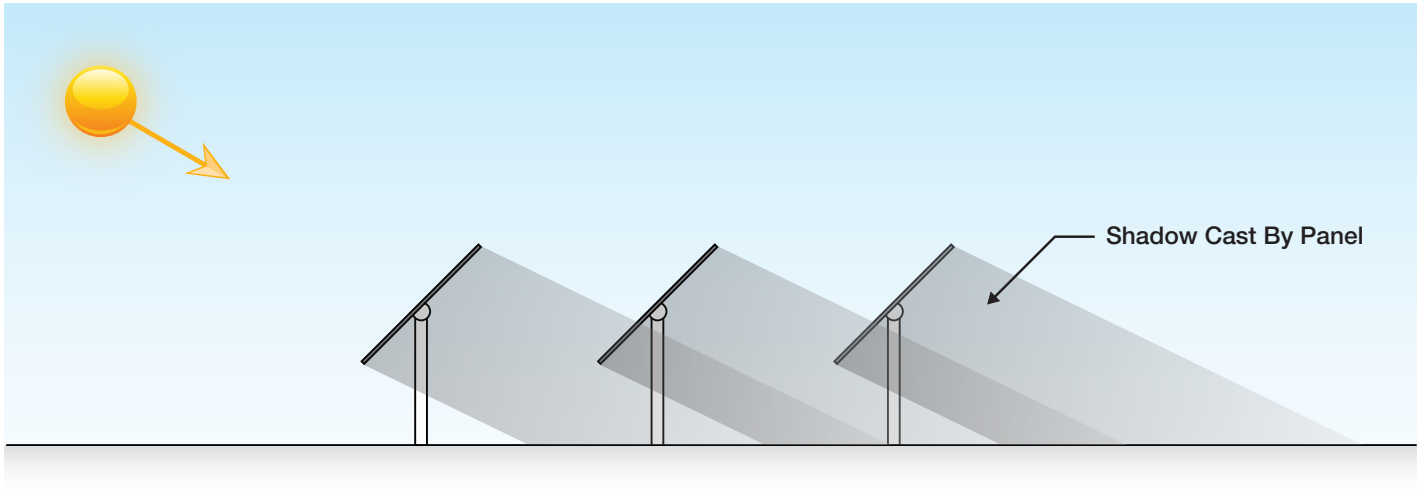
APPENDIX B SOLAR BEHAVIOR

Single Axis Tracker Behavior

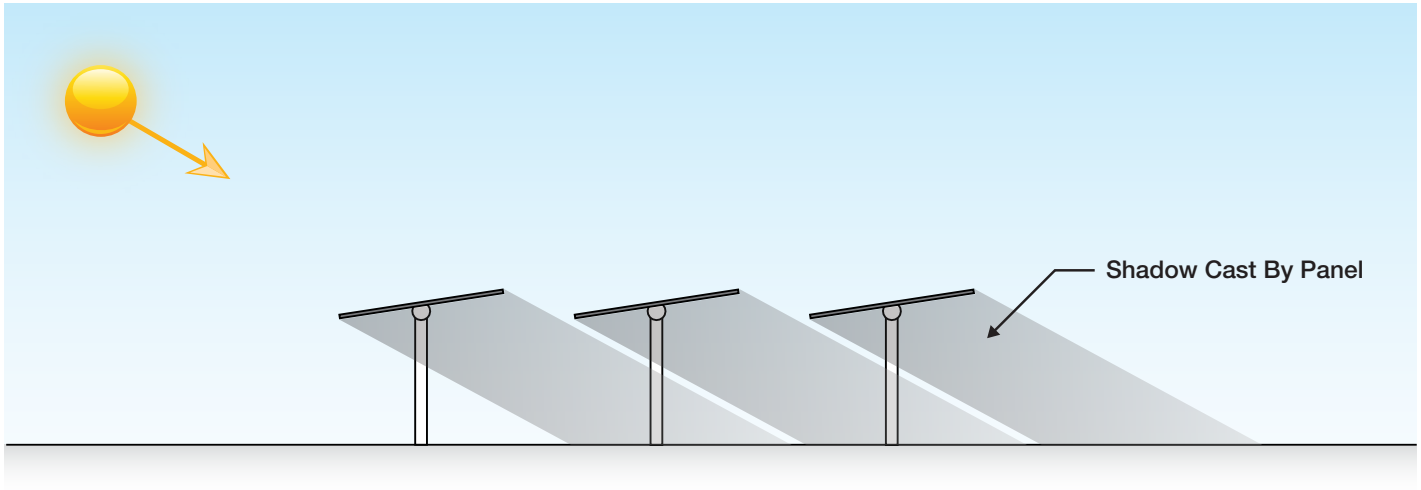


Back Tracking Procedures

Panels *without* Back Tracking



Panels *with* Back Tracking



APPENDIX C GLAREGAUGE OUTPUT GLARE ANALYSIS

FORGESOLAR GLARE ANALYSIS

Project: **Brawley Solar**
Site configuration: **Brawley PV**
Analysis conducted by Andy Stephens (andy.stephens@powereng.com) at 22:23 on 19 Apr, 2021.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	PASS	Flight path receptor(s) do not receive yellow glare
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 52670.9444

PV Array(s)

Name: PV array 1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 52.0°
Resting angle: 5.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.029958	-115.517802	-150.79	5.00	-145.79
2	33.029922	-115.515249	-148.76	5.00	-143.76
3	33.026522	-115.513876	-145.70	5.00	-140.70
4	33.026540	-115.517910	-151.93	5.00	-146.93

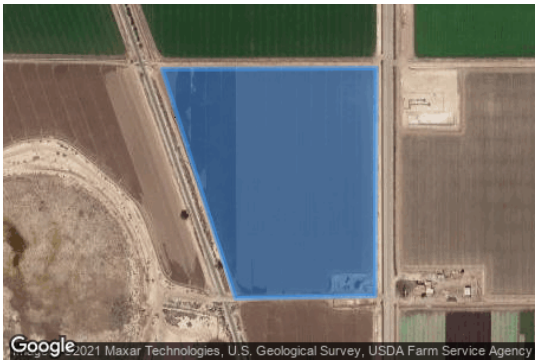
Name: PV array 2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 52.0°
Resting angle: 5.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.029940	-115.514949	-147.15	5.00	-142.15
2	33.029976	-115.509520	-145.94	5.00	-140.94
3	33.026540	-115.509477	-144.50	5.00	-139.50
4	33.026540	-115.513425	-145.34	5.00	-140.34

Name: PV array 3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 52.0°
Resting angle: 5.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.026414	-115.517717	-159.64	5.00	-154.64
2	33.026414	-115.513811	-145.48	5.00	-140.48
3	33.022933	-115.512341	-144.59	5.00	-139.59
4	33.022951	-115.513296	-147.35	5.00	-142.35
5	33.024273	-115.513747	-143.95	5.00	-138.95
6	33.025119	-115.515142	-149.87	5.00	-144.87
7	33.025119	-115.517759	-147.43	5.00	-142.43

Name: PV array 4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 52.0°
Resting angle: 5.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.026378	-115.513361	-146.34	5.00	-141.34
2	33.026396	-115.509477	-144.66	5.00	-139.66
3	33.022942	-115.509498	-143.54	5.00	-138.54
4	33.022906	-115.512030	-144.23	5.00	-139.23

Name: PV array 5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 52.0°
Resting angle: 5.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.022861	-115.513328	-148.32	5.00	-143.32
2	33.022834	-115.512331	-144.08	5.00	-139.08
3	33.021593	-115.511912	-146.10	5.00	-141.10
4	33.020279	-115.511891	-146.57	5.00	-141.57
5	33.019227	-115.512202	-144.98	5.00	-139.98
6	33.019236	-115.514401	-147.82	5.00	-142.82

Name: PV array 6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 52.0°
Resting angle: 5.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.022816	-115.511987	-144.06	5.00	-139.06
2	33.022834	-115.509509	-142.79	5.00	-137.79
3	33.019236	-115.509498	-143.10	5.00	-138.10
4	33.019245	-115.511869	-145.02	5.00	-140.02
5	33.020225	-115.511644	-146.05	5.00	-141.05
6	33.021691	-115.511644	-146.73	5.00	-141.73

Name: PV array 7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 52.0°
Resting angle: 5.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.019173	-115.514434	-148.52	5.00	-143.52
2	33.019155	-115.512223	-144.95	5.00	-139.95
3	33.016609	-115.513811	-145.07	5.00	-140.07
4	33.016591	-115.516097	-146.79	5.00	-141.79

Name: PV array 8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 52.0°
Resting angle: 5.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.019119	-115.511966	-144.60	5.00	-139.60
2	33.019146	-115.509509	-143.18	5.00	-138.18
3	33.015790	-115.509498	-140.29	5.00	-135.29
4	33.015763	-115.513929	-144.40	5.00	-139.40

Flight Path Receptor(s)

Name: FP 26
Description:
Threshold height: 50 ft
Direction: 270.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	32.992949	-115.511036	-134.19	50.00	-84.19
Two-mile	32.992954	-115.476524	-139.45	608.72	469.27

Name: FP 8
Description:
Threshold height: 50 ft
Direction: 90.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	32.992931	-115.522773	-128.04	50.00	-78.04
Two-mile	32.992931	-115.557285	-119.14	594.56	475.42

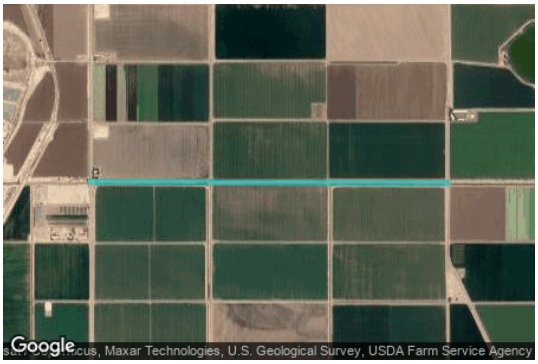
Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	33.030343	-115.508550	-144.90	10.00
OP 2	2	33.023028	-115.508671	-141.97	10.00
OP 3	3	33.015918	-115.508889	-141.68	10.00
OP 4	4	33.016206	-115.508985	-136.22	10.00
OP 5	5	33.012222	-115.510718	-132.70	10.00
OP 6	6	33.016879	-115.516500	-165.03	10.00
OP 7	7	33.019725	-115.525648	-140.27	10.00
OP 8	8	33.030390	-115.527614	-144.83	10.00
OP 9	9	33.001207	-115.508821	-129.38	10.00
OP 10	10	33.019487	-115.483043	-137.60	10.00
OP 11	11	33.030237	-115.517849	-149.57	10.00
OP 12	12	33.009611	-115.521644	-130.02	10.00

Route Receptor(s)

Name: Route 2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.015524	-115.483415	-138.71	10.00	-128.71
2	33.015615	-115.509284	-142.13	10.00	-132.13

Name: Route 3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.044565	-115.527346	-161.18	10.00	-151.18
2	33.043630	-115.527389	-159.66	10.00	-149.66
3	33.043018	-115.527303	-157.99	10.00	-147.99
4	33.041831	-115.526981	-158.52	10.00	-148.51
5	33.040860	-115.526917	-156.83	10.00	-146.83
6	33.027924	-115.526836	-149.21	10.00	-139.21
7	33.015671	-115.526847	-142.44	10.00	-132.44
8	33.010274	-115.526584	-138.38	10.00	-128.38
9	33.007710	-115.526552	-148.29	10.00	-138.29
10	33.004426	-115.526509	-165.15	10.00	-155.15
11	33.000994	-115.526430	-133.10	10.00	-123.10
12	32.999906	-115.526452	-132.98	10.00	-122.98

Name: Route 4
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.044574	-115.527519	-160.65	10.00	-150.64
2	33.044485	-115.521446	-164.99	10.00	-154.99
3	33.044485	-115.509001	-151.38	10.00	-141.37
4	33.044507	-115.501104	-149.43	10.00	-139.43
5	33.044579	-115.500171	-150.41	10.00	-140.41
6	33.044603	-115.479221	-146.50	10.00	-136.50

Name: Route 4
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.044443	-115.509272	-151.53	10.00	-141.53
2	33.039923	-115.509262	-150.45	10.00	-140.45
3	33.030728	-115.509247	-148.05	10.00	-138.05
4	33.026435	-115.509240	-145.11	10.00	-135.11
5	33.022358	-115.509239	-143.95	10.00	-133.95
6	33.016137	-115.509232	-139.34	10.00	-129.34
7	33.015714	-115.509248	-140.20	10.00	-130.20
8	33.015294	-115.509293	-141.75	10.00	-131.75
9	33.001013	-115.509288	-133.83	10.00	-123.83
10	33.000860	-115.509293	-136.04	10.00	-126.04

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 1	SA tracking	SA tracking	0	0	-
PV array 2	SA tracking	SA tracking	0	0	-
PV array 3	SA tracking	SA tracking	0	0	-
PV array 4	SA tracking	SA tracking	0	0	-
PV array 5	SA tracking	SA tracking	0	0	-
PV array 6	SA tracking	SA tracking	0	0	-
PV array 7	SA tracking	SA tracking	0	0	-
PV array 8	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
FP 26	0	0
FP 8	0	0
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
Route 2	0	0
Route 3	0	0
Route 4	0	0
Route 4	0	0

Results for: PV array 1

Receptor	Green Glare (min)	Yellow Glare (min)
FP 26	0	0
FP 8	0	0
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
Route 2	0	0
Route 3	0	0
Route 4	0	0
Route 4	0	0

Flight Path: FP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: FP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Route: Route 2

0 minutes of yellow glare
0 minutes of green glare

Route: Route 3

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2

Receptor	Green Glare (min)	Yellow Glare (min)
FP 26	0	0
FP 8	0	0
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Route 2	0	0
Route 3	0	0
Route 4	0	0
Route 4	0	0

Flight Path: FP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: FP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Route: Route 2

0 minutes of yellow glare
0 minutes of green glare

Route: Route 3

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 3

Receptor	Green Glare (min)	Yellow Glare (min)
FP 26	0	0
FP 8	0	0
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
Route 2	0	0
Route 3	0	0
Route 4	0	0
Route 4	0	0

Flight Path: FP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: FP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare

0 minutes of green glare

Route: Route 2

0 minutes of yellow glare
0 minutes of green glare

Route: Route 3

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4

Receptor	Green Glare (min)	Yellow Glare (min)
FP 26	0	0
FP 8	0	0
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
Route 2	0	0
Route 3	0	0
Route 4	0	0
Route 4	0	0

Flight Path: FP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: FP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Route: Route 2

0 minutes of yellow glare
0 minutes of green glare

Route: Route 3

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 5

Receptor	Green Glare (min)	Yellow Glare (min)
FP 26	0	0
FP 8	0	0
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
Route 2	0	0
Route 3	0	0
Route 4	0	0
Route 4	0	0

Flight Path: FP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: FP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare

0 minutes of green glare

Route: Route 2

0 minutes of yellow glare
0 minutes of green glare

Route: Route 3

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 6

Receptor	Green Glare (min)	Yellow Glare (min)
FP 26	0	0
FP 8	0	0
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
Route 2	0	0
Route 3	0	0
Route 4	0	0
Route 4	0	0

Flight Path: FP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: FP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Route: Route 2

0 minutes of yellow glare
0 minutes of green glare

Route: Route 3

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 7

Receptor	Green Glare (min)	Yellow Glare (min)
FP 26	0	0
FP 8	0	0
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
Route 2	0	0
Route 3	0	0
Route 4	0	0
Route 4	0	0

Flight Path: FP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: FP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare

0 minutes of green glare

Route: Route 2

0 minutes of yellow glare
0 minutes of green glare

Route: Route 3

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 8

Receptor	Green Glare (min)	Yellow Glare (min)
FP 26	0	0
FP 8	0	0
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
Route 2	0	0
Route 3	0	0
Route 4	0	0
Route 4	0	0

Flight Path: FP 26

0 minutes of yellow glare
0 minutes of green glare

Flight Path: FP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Route: Route 2

0 minutes of yellow glare
0 minutes of green glare

Route: Route 3

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Route: Route 4

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
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.
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.)
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.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

AIR QUALITY, ENERGY, AND GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

BRAWLEY SOLAR ENERGY FACILITY PROJECT

IMPERIAL COUNTY

Lead Agency:

Imperial County Planning and Development
801 Main Street
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Project No. 21014

November 29, 2021

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
Air Basin	Salton Sea Air Basin
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BSFC	Brake Specific Fuel Consumption
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
Cf_4	tetrafluoromethane
C_2F_6	hexafluoroethane
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
County	County of Imperial
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
ºF	Fahrenheit
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
GWP	Global warming potential
HAP	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons
ICAPCD	Imperial County Air Pollution Control District
IPCC	International Panel on Climate Change
kWhr	kilowatt-hour

LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds
MATES	Multiple Air Toxics Exposure Study
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrogen oxides
NO_2	Nitrogen dioxide
OPR	Office of Planning and Research
Pfc	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion
PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SF_6	Sulfur Hexafluoride
SIP	State Implementation Plan
SO_x	Sulfur oxides
TAC	Toxic air contaminants
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Air Quality, Energy, and Greenhouse Gas (GHG) Emissions Impact Analysis has been completed to determine the air quality, energy, and GHG emissions impacts associated with the proposed Brawley Solar Energy Facility project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality regulatory framework;
- A description of the energy conservation regulatory framework;
- A description of the GHG emissions regulatory framework;
- A description of the air quality, energy, and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP);
- An analysis of the short-term construction related and long-term operational air quality, energy, and GHG emissions impacts; and
- An analysis of the conformity of the proposed project with all applicable energy and GHG emissions reduction plans and policies.

1.2 Site Locations and Study Area

The project site is located in the County of Imperial (County). The approximately 227-acre project site is currently alfalfa fields within different levels of harvest and is bounded by undeveloped agricultural land to the north and to the east, undeveloped agricultural land and dirt lots used for staging actives to the south, and City of Brawley Wastewater Treatment Plan to the west. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are single-family homes located as near as 40 feet to the north side of the project site (near the northwest corner of the project site). The nearest school is Brawley Union High School and Desert Valley High School, which is located as near as 2.7 miles south of the project site and Barbara Worth Junior High School, which is located as near as 2.8 miles south of the project site.

1.3 Proposed Project Description

The proposed project would consist of development of solar energy facility located at 5003 Best Ave, Brawley. The Brawley solar energy facility includes a 40 Megawatt (MW)/160 Megawatt hour (MWh) photovoltaic (PV) solar farm and 40 MW/160 MWh battery energy storage system (BESS). Power generated by the proposed 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. 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. The Project would connect to the North Brawley Geothermal Power Plant substation southwest of the Project site via an approximately 1.6-mile-long aboveground 92 kilovolt (kV) generation tie line (gen-tie line). Energy generated and stored by the project will 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 site plan is shown in Figure 2.

1.4 Executive Summary

Standard Air Quality, Energy, and GHG Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the ICAPCD and State of California (State).

Imperial County Air Pollution Control District Regulations

The following lists the ICAPCD regulations are applicable, but not limited to the proposed project.

- Regulation II Permits – Requires all stationary emissions sources to obtain a permit from ICAPCD;
- Regulation VIII – Provides specific rules for the control of fugitive dust.

State of California Rules

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to the proposed project.

- CCR Title 13, Article 4.8, Chapter 9, Section 2449 – In use Off-Road Diesel Vehicles;
- CCR Title 13, Section 2025 – On-Road Diesel Truck Fleets; and
- CCR Title 24 Part 11 – California Green Building Standards.

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality, energy, and GHG emissions checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact.

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.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than significant impact.

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;

Less than significant impact.

Conflict with or obstruct a state or local plan for renewable energy;

Less than significant impact.

Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

No impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

No impact.

1.5 Project Design Features Incorporated into the Proposed Project

This analysis was based on implementation of the following project design features from the *CEQA Air Quality Handbook* (ICAPCD CEQA Handbook), prepared by ICAPCD, December 12, 2017, that all industrial projects in the County are required to implement.

Project Design Feature 1:
The project applicant shall require the following measures to be implemented during construction of the project:

Fugitive Dust 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% 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 will be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

c. All unpaved traffic areas one (1) acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emission shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

d. The transport of Bulk Materials shall be completely covered unless six 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 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.

f. 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.

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.

Construction Combustion Equipment

a. Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment.

b. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.

c. Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in use.

d. When commercially available, replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

Project Design Feature 2

The project applicant shall require that all construction equipment utilized during construction of the project 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 NO_x 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.

Project Design Feature 3

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).

Project Design Feature 4

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.

Project Design Feature 5

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.

Project Design Feature 6

During construction and operation of the proposed project, the applicant shall limit the speed of all vehicles operating onsite on dirt roads to 15 miles per hour or less.

Project Design Feature 7

The project applicant shall require the following measures to be implemented during operation of the project (as detailed above in Section 1.2, the project would operate remotely, with no employees typically onsite, as such the measures specific for onsite employees are not applicable to the project):

- Provide for paving a minimum of 100 feet from the property line for commercial driveways that access County paved roads as per County Standard Commercial Driveway Detail 410B.
- Measures which meet mandatory, prescriptive/performance measures as required by Title 24.

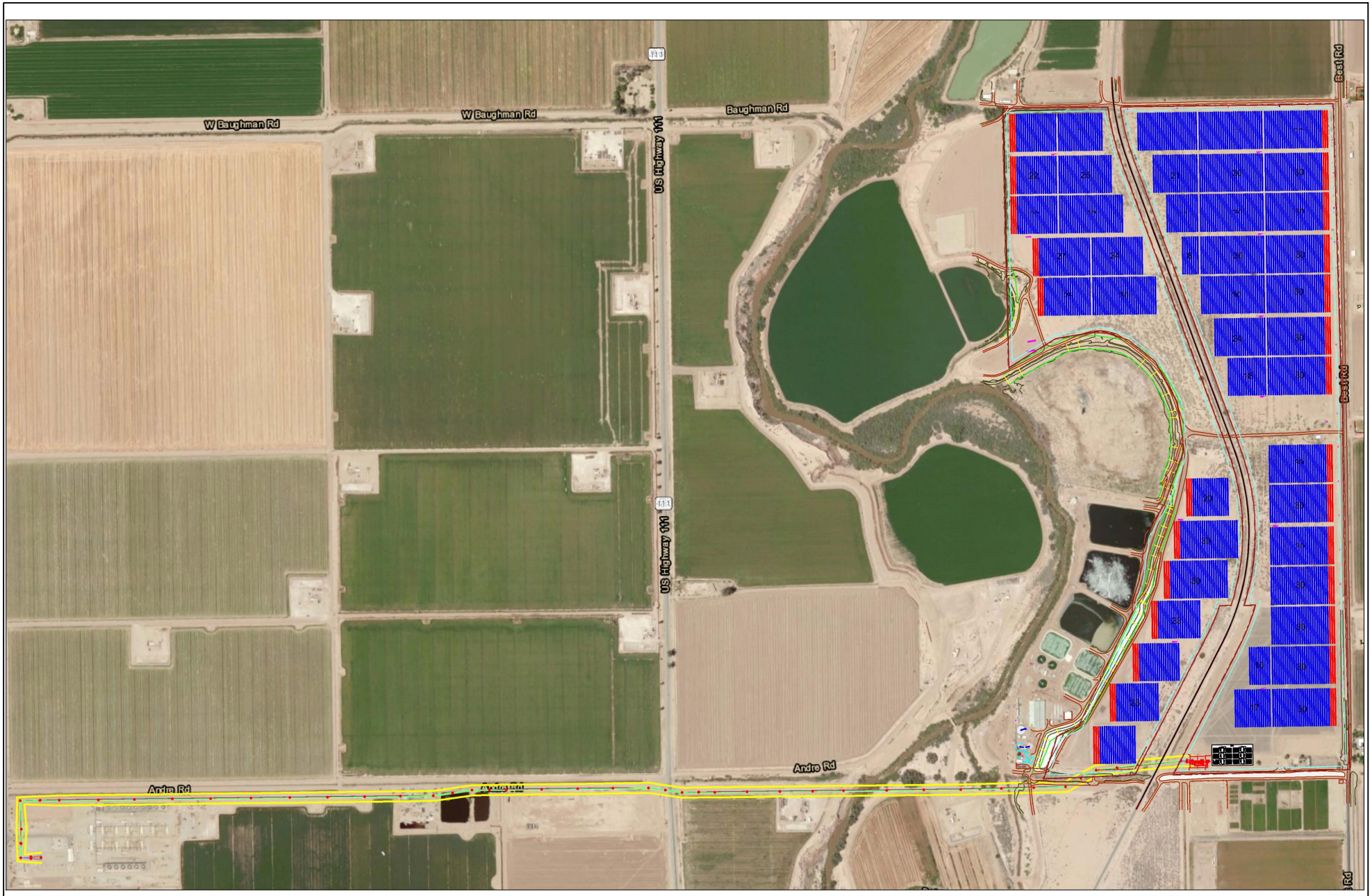
1.6 Mitigation Measures for the Proposed Project

This analysis found that implementation of the State and ICAPCD air quality, energy, and GHG emissions reductions regulations and the Project Design Features provided above in Section 1.5 were adequate to limit criteria pollutants, toxic air contaminants, odors, and GHG emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality, energy, and GHG emissions.

SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Local Study Area



SOURCE: McKently Malak Architecture.

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 AIR POLLUTANTS

Air pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

2.1 Criteria Pollutants and Ozone Precursors

The criteria pollutants consist of ozone, nitrogen oxides (NOx), CO, sulfur oxides (SOx), lead, and particulate matter (PM). The ozone precursors consist of NOx and Volatile Organic Compounds (VOC). These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants and ozone precursors.

Nitrogen Oxides

NOx is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of nitrogen dioxide (NO_2) can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NOx are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NOx and the pollutants formed from NOx can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Ozone

Ozone is not usually emitted directly into the air, instead it is created by a chemical reaction between NOx and VOC in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves,

gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Sulfur Oxides

SOx gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

Lead

Lead is a metal found naturally in the environment as well as manufactured products. 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 now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Particulate Matter

PM is the term for a mixture of solid particles and liquid droplets found in the air. PM is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) that are also known as *Respirable Particulate Matter* are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) that are also known as *Fine Particulate Matter* have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

Volatile Organic Compounds

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of ozone are referred to and regulated as VOCs (also

referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

VOC is not classified as a criteria pollutant, since VOCs by themselves are not a known source of adverse health effects. The primary health effects of VOCs result from the formation of ozone and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered toxic air contaminants (TACs). There are no separate health standards for VOCs as a group.

2.2 Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is DPM. DPM is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the CARB to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

Asbestos

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release

asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California,* prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 70 miles northwest of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

3.0 GREENHOUSE GASES

3.1 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHGs), play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Carbon Dioxide

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This

could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

Methane

CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and CFCs). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). 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 methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N_2O is also commonly used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and race cars).

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane 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 have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays 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. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6).

Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride

Sulfur Hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

3.2 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO_2. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2 equivalent (CO_2e). As such, the GWP of CO_2 is equal to 1. The GWP values used in this analysis are based on the 2007 IPCC Fourth Assessment Report, which are used in CARB's 2014 Scoping Plan Update and the CalEEMod Model Version 2016.3.2 and are detailed in Table A. The IPCC has updated the Global Warming Potentials of some gases in their Fifth Assessment Report, however the new values have not yet been incorporated into the CalEEMod model that has been utilized in this analysis.

Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs

Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100 Year Horizon)[2]	Atmospheric Abundance
Carbon Dioxide (CO_2)	50-200	1	379 ppm
Methane (CH_4)	9-15	25	1,774 ppb
Nitrous Oxide (N_2O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF_4)	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF_6)	3,200	22,800	5.6 ppt

Notes:

[1] Defined as the half-life of the gas.
[2] Compared to the same quantity of CO_2 emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2016.3.2),that is used in this report (CalEEMod user guide: Appendix A).
Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion
Source: IPCC 2007, EPA 2015

3.3 Greenhouse Gas Emissions Inventory

According to the Carbon Dioxide Information Analysis Center[1], 9,855 million metric tons (MMT) of CO_2e emissions were created globally in the year 2014. According to the Environmental Protection Agency (EPA), the breakdown of global GHG emissions by sector consists of: 25 percent from electricity and heat production; 21 percent from industry; 24 percent from agriculture, forestry and other land use activities; 14 percent from transportation; 6 percent from building energy use; and 10 percent from all other sources of energy use[2].

According to *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2019,* prepared by EPA, in 2019 total U.S. GHG emissions were 6,558 million metric tons (MMT) of CO_2e emissions. Total U.S. emissions have increased by 4 percent between 1990 and 2016 and GHG emissions decreased by 13 percent between 2005 and 2019. The recent decrease in GHG emissions was a result of multiple factors, including population, economic growth, energy markets, and technological changes the include energy efficiency and energy fuel choices. Between 2018 and 2019, GHG emissions decreased by almost 2 percent due to multiple factors, including a one percent decrease in total energy use.

According to *California Greenhouse Gas Emissions for 2000 to 2019 Trends of Emissions and Other Indicators*, prepared by CARB, July 28, 2021, the State of California created 418.2 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) in 2019. The 2019 emissions were 7.2 $MMTCO_2e$ lower than 2018 levels and almost 13 $MMTCO_2e$ below the State adopted year 2020 GHG limit of 431 $MMTCO_2e$. The breakdown of California GHG emissions by sector consists of: 39.7 percent from transportation; 21.1 percent from industrial; 14.1 percent from electricity generation; 7.6 percent from agriculture; 10.5 percent from residential and commercial buildings; 4.9 percent from high global warming potential sources, and 2.1 percent from waste.

1 Obtained from: https://cdiac.ess-dive.lbl.gov/trends/emis/tre_glob_2014.html
2 Obtained from: https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data

4.0 AIR QUALITY MANAGEMENT

The air quality at the project site is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

4.1 Federal – United States Environmental Protection Agency

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The EPA was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table B.

Table B – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O_3)	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm, / 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10})	50 µg/m^3 / 24-hour 20 µg/m^3 / annual	150 µg/m^3 / 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Suspended Particulate Matter ($PM_{2.5}$)	12 µg/m^3 / annual	35 µg/m^3 / 24-hour 12 µg/m^3 / annual	
Sulfates	25 µg/m^3 / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 µg/m^3 / 30-day	0.15 µg/m^3 /3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf .

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. The CARB defines attainment as the category given to an area with no violations in the past three years.

As indicated below in Table C, the ICAPCD portion of the Salton Sea Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone, respirable particulates (PM10), and fine particulate matter (PM2.5). Currently, the ICAPCD is in attainment with the national ambient air quality standards for carbon monoxide (CO), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2).

Table C – Salton Sea Air Basin Attainment Status

Pollutant	Federal Designation	State Designation
Ozone (O_3) – 2008 Standard	Nonattainment (Moderate)	Nonattainment
Respirable Particulate Matter (PM10)	Nonattainment (Serious)	Nonattainment
Fine Particulate Matter (PM2.5)	Nonattainment (Moderate)	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment

Source: https://ww3.arb.ca.gov/desig/adm/adm.htm ; and https://ww3.arb.ca.gov/planning/sip/planarea/imperial/staffreport121318.pdf

4.2 State – California Air Resources Board

The CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants are shown above in Table B. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The ICAPCD has been designated by the CARB as a non-attainment area for ozone, PM10, and PM2.5. Currently, the ICAPCD is in attainment with the ambient air quality standards for CO, NO_2, and SO_2.

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to all non-residential projects in the State.

Assembly Bill 2588

The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release in California. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

CARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the CARB adopted California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 to reduce DPM and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0 or Tier 1 engine. By January 1, 2018 medium and large fleets will be restricted from adding Tier 2 engines to their fleets and by January 2023, no commercial operation will be allowed to add Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tier 0 and 1 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

CARB Resolution 08-43 for On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in

California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2014, 50 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM10 emissions. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

4.3 Local – County of Imperial

The ICAPCD is the agency principally responsible for comprehensive air pollution control in the County. To that end, as a regional agency, the ICAPCD works directly with the Southern California Association of Governments (SCAG), the Imperial County Transportation Commission (ICTC), and local governments and cooperates actively with all federal and state agencies.

Imperial County Air Pollution Control District

The ICAPCD is the agency principally responsible for comprehensive air pollution control in Imperial County. To that end, as a regional agency, the ICAPCD works directly with the County and incorporated communities as well as the military bases within the County to control air emissions within the County.

The ICAPCD has addressed each of three nonattainment pollutants in separate State Implementation Plans (SIPs). For ozone the most current SIP is the Imperial County 2017 State Implementation Plan for the 2008 8-Hour Ozone Standard (2017 Ozone SIP), prepared by ICAPCD, September 2017, which was prepared to detail measures to reduce ozone precursors (i.e., reactive organic gases [ROGs] and NOx) within the County in order to meet the 2008 NAAQS for 8-hour ozone standard of 0.075 parts per million (ppm) by July 20, 2018. Although the Ozone 2017 SIP demonstrates that the County met the 8-hour ozone standard of 0.075 ppm by the July 20, 2018, requirement, it should be noted that in 2015 the USEPA further strengthened its 8-hour ozone standard to 0.070 ppm, which will require an updated SIP for the County to meet the new ozone standard.

Since PM10 in the County has met the 24-hour NAAQS other than for exceptional events that include storms as well as from substantial PM10 concentrations blowing into the County from Mexico, the most current PM10 plan is the Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter less than 10 Microns in Diameter (2018 PM10 Plan), prepared by ICAPCD, October 23, 2018. The 2018 PM10 Plan shows that the monitoring of PM10 in the County found that other than exceptional events, no violation of the 24-hour PM10 NAAQS of 150 micrograms per cubic meter (µg/m3) occurred over the 2014 to 2016 time period. As such, the ICAPCD has requested the USEPA to redesignate the Air Basin to maintenance. The redesignation was anticipated to occur sometime in the year 2020.

For PM2.5 the most current SIP is the Imperial County 2018 Annual Particulate Matter less than 2.5 Microns in Diameter State Implementation Plan (2018 PM2.5 SIP), prepared by ICAPCD, April 2018, which was prepared to detail measures to meet the 2012 NAAQS for annual PM2.5¬ standard of 12 µg/m3 by the end of 2021 for the portion of Imperial County (approximately from Brawley to Mexico border) that is designated nonattainment. The PM2.5 Plan found that the only monitoring station in the County that has recorded an exceedance of PM2.5 is the Calexico Monitoring Station and that the exceedance is likely caused by the transport of PM2.5 across the border from Mexico. It is anticipated that the ICAPCD will submit a redesignation request for PM2.5 in the near future.

Although ICAPCD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the County. Instead, this is controlled through local jurisdictions in accordance with the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (CEQA Handbook), prepared by ICAPCD on December 12, 2017, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the CEQA Handbook explains the procedures that ICAPCD recommends be followed for the environmental review process required by CEQA. The CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The ICAPCD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the County, and adverse impacts will be minimized.

The following provides the ICAPCD regulations that are applicable but not limited to industrial development projects in the County.

Regulation II - Permits

Rule 201 requires that a permit to construct and operate be obtained prior to start of construction activities for all facilities that need to obtain an Air Quality Permit from the ICAPCD to operate, which includes backup diesel generators. Rule 208 requires a permit for all facilities prior to the construction, installation, modification, replacement, and operation of any equipment which may emit air contaminants.

Regulation VIII – Fugitive Dust Rules

Rule 800 provides general requirements for the control of fugitive dust. Rule 801 provides specific rules for fugitive dust emissions created during construction and earthmoving activities. Rule 802 provides specific rules for fugitive dust emissions from bulk materials. Rule 803 provides specific rules for carry-out and track-out. Rule 805 provides specific rules for fugitive dust emissions from paved and unpaved roads.

Imperial County Transportation Commission

The ICTC serves as the regional delegated transportation commission for Imperial County that participates in development and implementation of the RTP and distributes and oversees the Local Transportation Fund. ICTC's jurisdiction includes the seven incorporated cities in the County, the unincorporated County and the Imperial Valley Transit (IVT) System.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (Connect SoCal), adopted September 3, 2020 and the *2019 Federal Transportation Improvement* Program (2019 FTIP), adopted September 2018, which addresses regional development and

growth forecasts. Although the Connect SoCal and 2019 FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Connect SoCal, 2019 FTIP, and AQMP are based on projections originating within the City and County General Plans.

5.0 ENERGY CONSERVATION MANAGEMENT

The regulatory setting related to energy conservation is primarily addressed through State and County regulations, which are discussed below.

5.1 State

Energy conservation management in the State was initiated by the 1974 Warren-Alquist State Energy Resources Conservation and Development Act that created the California Energy Resource Conservation and Development Commission (currently named California Energy Commission [CEC]), which was originally tasked with certifying new electric generating plants based on the need for the plant and the suitability of the site of the plant. In 1976 the Warren-Alquist Act was expanded to include new restrictions on nuclear generating plants, that effectively resulted in a moratorium of any new nuclear generating plants in the State. The following details specific regulations adopted by the State in order to reduce the consumption of energy.

California Code of Regulations (CCR) Title 20

On November 3, 1976 the CEC adopted the *Regulations for Appliance Efficiency Standards Relating to Refrigerators, Refrigerator-Freezers and Freezers and Air Conditioners,* which were the first energy-efficiency standards for appliances. The appliance efficiency regulations have been updated several times by the Commission and the most current version is the *2016 Appliance Efficiency Regulations*, adopted January 2017 and now includes almost all types of appliances and lamps that use electricity, natural gas as well as plumbing fixtures. The authority for the CEC to control the energy-efficiency of appliances is detailed in California Code of Regulations (CCR), Title 20, Division 2, Chapter 4, Article 4, Sections 1601-1609.

California Code of Regulations (CCR) Title 24, Part 6

The CEC is also responsible for implementing the CCR Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* (Title 24 Part 6) that were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. In 2008 the State set an energy-use reduction goal of zero-net-energy use of all new homes by 2020 and the CEC was mandated to meet this goal through revisions to the Title 24, Part 6 regulations.

The Title 24 standards are updated on a three-year schedule and since 2008 the standards have been incrementally moving to the 2020 goal of the zero-net-energy use. On January 1, 2020 the 2019 standards went into effect, that have been designed so that the average new home built in California will now use zero-net-energy and that non-residential buildings will use about 30 percent less energy than the 2016 standards due mainly to lighting upgrades. The 2019 standards also encourage the use of battery storage and heat pump water heaters, require the more widespread use of LED lighting, as well as improve the building's thermal envelope through high performance attics, walls and windows. The 2019 standards also require improvements to ventilation systems by requiring highly efficient air filters to trap hazardous air particulates as well as improvements to kitchen ventilation systems.

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 11: *California Green Building Standards* (CalGreen) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The CalGreen Building

Standards are also updated every three years and the current version is the 2019 California Green Building Standard Code that become effective on January 1, 2020.

The CALGreen Code contains requirements for construction site selection; storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others. Implementation of the CALGreen Code measures reduces energy consumption and vehicle trips and encourages the use of alternative-fuel vehicles, which reduces pollutant emissions.

Some of the notable changes in the 2019 CALGreen Code over the prior 2016 CALGreen Code include: an alignment of building code engineering requirements with the national standards that include anchorage requirements for solar panels, provides design requirements for buildings in tsunami zones, increases Minimum Efficiency Reporting Value (MERV) for air filters from 8 to 13, increased electric vehicle charging requirements in parking areas, and sets minimum requirements for use of shade trees.

Senate Bill 100

Senate Bill 100 (SB 100) was adopted September 2018 and requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity. SB 100 supersedes the renewable energy requirements set by SB 350, SB 1078, SB 107, and SB X1-2. However, the interim renewable energy thresholds from the prior Bills of 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, will remain in effect.

Executive Order B-48-18 and Assembly Bill 2127

The California Governor issued Executive Order B-48-18 on January 26, 2018 that orders all state entities to work with the private sector to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025. Currently there are approximately 350,000 electric vehicles operating in California, which represents approximately 1.5 percent of the 24 million vehicles total currently operating in California. Implementation of Executive Order B-48-18 would result in approximately 20 percent of all vehicles in California to be zero emission electric vehicles. Assembly Bill 2127 (AB 2127) was codified into statute on September 13, 2018 and requires that the California Energy Commission working with the State Air Resources Board prepare biannual assessments of the statewide electric vehicle charging infrastructure needed to support the levels of zero emission vehicle adoption required for the State to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030.

Assembly Bill 1109

California Assembly Bill 1109 (AB 1109) was adopted October 2007, also known as the Lighting Efficiency and Toxics Reduction Act, prohibits the manufacturing of lights after January 1, 2010 that contain levels of hazardous substances prohibited by the European Union pursuant to the RoHS Directive. AB 1109 also requires reductions in energy usage for lighting and is structured to reduce lighting electrical consumption by: (1) At least 50 percent reduction from 2007 levels for indoor residential lighting; and (2) At least 25 percent reduction from 2007 levels for indoor commercial and all outdoor lighting by 2018. AB 1109 would reduce GHG emissions through reducing the amount of electricity required to be generated by fossil fuels in California.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. In June 2009, the EPA granted California the authority to implement GHG emission reduction standards for light duty vehicles, in September 2009, amendments to the Pavley I regulations were adopted by CARB and implementation of the "Pavley I" regulations started in 2009.

The second set of regulations "Pavley II" was developed in 2010, and is being phased in between model years 2017 through 2025 with the goal of reducing GHG emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards were developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the "LEV III" (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles and these GHG emissions standards are currently being implemented nationwide. However, EPA has performed a midterm evaluation of the longer-term standards for model years 2022-2025, and based on the findings of this midterm evaluation, the EPA has proposed to amend the corporate average fuel economy (CAFE) and GHG emissions standards for light vehicles for model years 2021 through 2026. The EPA's proposed amendments do not include any extension of the legal waiver granted to California by the 1970 Clean Air Act and which has allowed the State to set tighter standards for vehicle pipe emissions than the EPA standards. On September 20, 2019, California filed suit over the EPA decision to revoke California's legal waiver that has been joined by 22 other states.

5.2 Local – Imperial County

The Imperial County General Plan Renewable Energy and Transmission Element addresses energy conservation. The General Plan Goals and Policies identified below, address energy conservation.

Table D – Imperial County General Plan Energy Conservation Goals, Objectives and Policies

Goal, Objective, and Polices	General Plan
Goal 1	Support the safe and orderly development of renewable energy while providing for the protection of environmental resources.
Objective 1.1	The County of Imperial supports the overall goals of the Desert Renewable Energy Conservation Plan to provide a balance between the development of renewable energy resources while preserving sensitive environmental resources within its jurisdiction.
Objective 1.2	Lessen impacts of site and design production facilities on agricultural, natural, and cultural resources.
Objective 1.3	Require the use of directional geothermal drilling and "islands" when technically advisable in irrigated agricultural soils and sensitive or unique biological areas.
Objective 1.4	Analyze potential impacts on agricultural, natural, and cultural resources, as appropriate.
Objective 1.5	Analyze potential impacts on agricultural, natural, and cultural resources, as appropriate.
Objective 1.6	Encourage the efficient use of water resources required in the operation of renewable energy generation facilities.
Objective 1.7	Assure that development of renewable energy facilities and transmission lines comply with Imperial County Air Pollution Control District's regulations and mitigation measures.
Goal 2	Encourage development of electrical transmission lines along routes which minimize potential environmental effects.
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.
Objective 2.2	Where practicable and cost-effective, design transmission lines to minimize impacts on agricultural, natural, and cultural resources, urban areas, military operation areas, and recreational activities.
Goal 3	Support development of renewable energy resources that will contribute to and enhance the economic vitality of Imperial County.
Objective 3.1	Preserve IID's Balancing Authority and local rate-making authority which allows IID to continue to provide low-cost service. Lower energy rates enhance the economic vitality in Imperial County.
Objective 3.2	Encourage the continued development of the mineral extraction/production industry for job development using geothermal brines from the existing and future geothermal flash power plants.
Objective 3.3	Encourage the development of services and industries associated with renewable energy facilities.
Objective 3.4	Assure that revenues projected from proposed renewable energy facility developments are sufficient to offset operational costs to the County from that particular development.
Objective 3.5	Encourage employment of County residents by the renewable energy industries wherever and whenever possible.
Objective 3.6	Encourage the establishment of necessary and applicable renewable energy training programs in local school systems in association with the renewable energy industry.
Objective 3.7	Evaluate environmental justice issues associated with job creation and displacement when considering the approval of renewable energy projects.
Goal 4	Support development of renewable energy resources that will contribute to the restoration efforts of the Salton Sea.
Objective 4.1	Prioritize the Salton Sea exposed seabed (playa) for renewable energy Development.

Goal, Objective, and Polices	General Plan
Objective 4.2	Encourage the development of renewable energy facilities that will contribute to the reduction or elimination of airborne pollutants created by exposure of the seabed of the Salton Sea as it recedes.
Objective 4.3	Develop mitigation measures and monitoring programs to minimize impacts to avian species and other species that may be affected by renewable energy facilities constructed near the Salton Sea.
Goal 5	Encourage development of innovative renewable energy technologies that will diversify Imperial County's energy portfolio.
Objective 5.1	Support the implementation of pilot projects intended to test or demonstrate new and innovative renewable energy production technologies.
Objective 5.2	Encourage development of utility-scale distributed generation projects in the County.
Goal 6	Support development of renewable energy while providing for the protection of military aviation and operations.
Objective 6.1	Assure that renewable energy facilities proposed in areas adjacent to military installations and training areas will be compatible with these uses.
Objective 6.2	Facilitate the early exchange of project-related information with the military for proposed renewable energy facilities located within a military operations area (MOA) or within 1,000 feet of a military installation.
Objective 6.3	Assure that renewable energy facilities proposed within MOAs will not jeopardize the safety of existing residents or impact military operations.
Goal 7	Actively minimize the potential for land subsidence to occur as a result of renewable energy operations.
Objective 7.1	Require that all renewable energy facilities, where deemed appropriate, include design features that will prevent subsidence and other surface conditions from impacting existing land uses.
Objective 7.2	For geothermal energy development facilities, establish injection standards consistent with the requirements of the California Division of Oil, Gas, and Geothermal Resources (CDOGGR). Request a CDOGGR subsidence review, if necessary, for consideration prior to setting injection standards.
Objective 7.3	Require renewable energy facility permittees to establish and monitor subsidence detection networks in areas affected by permitted project activities.
Objective 7.4	Require monitoring programs for determining the possibility or extent of induced subsidence.
Objective 7.5	Require corrective measures, in proportion to each developer's activities, if evidence indicates that operation of geothermal energy facilities have caused, or will cause, surface impacts. In determining monitoring or mitigation requirements, the County shall consult with informed parties such as CDOGGR, County Department of Public Works, the IID, the permittee, other developers, and other experts as appropriate.
Objective 7.6	Where geothermal fields have been divided into units or developers have established a cooperative agreement for reservoir management, specific production and injection requirements of individually permitted projects may be modified in accordance with both Federal and State requirements.
Objective 7.7	Require seismic monitoring be performed in conjunction with major geothermal projects.
Objective 7.8	Require operators of geothermal facilities analyze seismic data to determine the effects of geothermal production and injection on seismic activities within the development area.
Objective 7.9	Consult with experts, such as CDOGGR, U.S. Geological Survey, geothermal industry representatives, permittees, and other developers to determine appropriate monitoring and mitigation requirements.

Goal, Objective, and Polices	General Plan
Objective 7.10	Require operators of geothermal facilities to establish a notification system to warn or notify surrounding residents of the accidental release of potentially harmful emissions as part of an emergency response plan.
Objective 7.11	Require all geothermal energy facilities to include operating procedures that would prevent detrimental impacts to geothermal reservoirs.
Goal 8	Develop overlay zones that will facilitate the development of renewable energy resources while preserving and protecting agricultural, natural, and cultural resources. Development of overlay zones shall include coordination with Federal, State, County, Tribal governments, educational entities, the public and local industries.
Objective 8.1	Allow for County review with appropriate development and performance standards for development of local resources within the overlay zones.
Objective 8.2	Promote the exchange of information concerning renewable energy development to be circulated between industry, County staff, and the public.
Objective 8.3	Provide the public adequate opportunity to obtain information on the current status of renewable energy development and to provide input on matters related to the development of renewable energy resources.

Source: County of Imperial General Plan, 2015.

6.0 GLOBAL CLIMATE CHANGE MANAGEMENT

The regulatory setting related to global climate change is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for global climate change regulations are discussed below.

6.1 International

In 1988, the United Nations established the IPCC to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The Paris Agreement has been adopted by 195 nations with 147 ratifying it, including the United States by President Obama, who ratified it by Executive Order on September 3, 2016. On June 1, 2017, President Trump announced that the United States is withdrawing from the Paris Agreement and on January 21, 2021 President Biden signed an executive order rejoining the Paris Agreement.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

6.2 Federal – United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for implementing federal policy to address global climate change. The Federal government administers a wide array of public-private partnerships to reduce U.S. GHG intensity. These programs focus on energy efficiency, renewable energy, methane, and other non-CO_2 gases, agricultural practices and implementation of technologies to achieve GHG reductions. EPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO_2 per mega-watt hour (MWh) for fossil fuel-fired utility boilers and 1,000 pounds of CO_2 per MWh for large natural gas-fired combustion units.

On April 30, 2020, the EPA and the National Highway Safety Administration published the Final Rule for the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). Part One of the Rule revokes California's authority to set its own GHG emissions standards and zero-emission vehicle mandates in California, which results in one emission standard to be used nationally for all passenger cars and light trucks that is set by the EPA.

6.3 State

The California Air Resources Board (CARB) has the primary responsible for implementing state policy to address global climate change, however there are State regulations related to global climate change that affect a variety of State agencies. CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both the federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In 2008, CARB approved a Climate Change Scoping Plan that proposes a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions which include direct regulations; alternative compliance mechanisms; monetary and non-monetary incentives; voluntary actions; market-based mechanisms such as a cap-and-trade system. In 2014, CARB approved the First Update to the Climate Change Scoping Plan (CARB 2014) that identifies additional strategies moving beyond the 2020 targets to the year 2050. On December 14, 2017 CARB adopted the California's 2017 Climate Change Scoping Plan, November 2017 (CARB 2017) that provides specific statewide policies and measures to achieve the 2030 GHG reduction target of 40 percent below 1990 levels by 2030 and the

aspirational 2050 GHG reduction target of 80 percent below 1990 levels by 2050. In addition, the State has passed the following laws directing CARB to develop actions to reduce GHG emissions, which are listed below in chronological order, with the most current first.

Executive Order N-79-20

The California Governor issued Executive Order N-79-20 on September 23, 2020 that requires all new passenger cars and trucks and commercial drayage trucks sold in California to be zero-emissions by the year 2035 and all medium- heavy-duty vehicles (commercial trucks) sold in the state to be zero-emission by 2045 for all operations where feasible. Executive Order N-79-20 also requires all off-road vehicles and equipment to transition to 100 percent zero-emission equipment, where feasible by 2035.

California Code of Regulations (CCR) Title 24, Part 6

The Title 24 Part 6 standards have been developed by the CEC primarily for energy conservation and is described in more detail above in Section 5.1 under Energy Conservation Management. It should be noted that implementation of the Title 24 Part 6 building standards would also reduce GHG emissions, since as detailed above in Section 3.3 Greenhouse Gas Emissions Inventory, energy use for residential and commercial buildings creates 9.7 percent of the GHG emissions in the State.

California Code of Regulations (CCR) Title 24, Part 11

The CalGreen Building standards have been developed by the CEC primarily for energy conservation and is described in more detail above in Section 5.1 under Energy Conservation Management. It should be noted that implementation of the CalGreen Building standards would also reduce GHG emissions, since as detailed above under Title 23, Part 6, energy usage from buildings creates 9.7 percent of GHG emissions in the State.

Senate Bill 100

SB 100 requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order B-48-18 and Assembly Bill 2127

Executive Order B-48-18 and AB 2127 provides measures to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025 and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order B-30-15, Senate Bill 32 and Assembly Bill 197

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030

as detailed in Executive Order B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

Executive Order B-29-15

The California Governor issued Executive Order B-29-15 on April 1, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles. Executive Order B-29-15 would reduce GHG emissions associated with the energy used to transport and filter water.

Assembly Bill 341 and Senate Bills 939 and 1374

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 in order to support the State's climate action goals to reduce GHG emissions through coordinated regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires CARB to set regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established targets for 2020 and 2035 for each Metropolitan Planning Organizations (MPO) within the State. It was up to each MPO to adopt a sustainable communities strategy (SCS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP) to meet CARB's 2020 and 2035 GHG emission reduction targets. These reduction targets are required to be updated every eight years. The most recent targets[3] provide GHG emissions reduction targets for SCAG of 8 percent by 2020 and 19 percent by 2035.

The Connect SoCal (SCAG 2020) provides a 2035 GHG emission reduction target of 19 percent reduction over the 2005 per capita emissions levels. The Connect SoCal include new initiatives of land use, transportation and technology to meet the new 19 percent GHG emission reduction target for 2035. CARB is also charged with reviewing SCAG's RTP/SCS for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS. However, new provisions of CEQA incentivize, through streamlining and other

3 Obtained from: https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets

provisions, qualified projects that are consistent with an approved SCS and categorized as "transit priority projects."

Assembly Bill 1109

AB 1109 requires reductions in energy usage for lighting and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Executive Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

In 2009 CARB approved the proposed regulation to implement the LCFS. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The LCFS is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The LCFS is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet annually. Reformulated gasoline mixed with corn-derived ethanol and low-sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel. Compressed natural gas and liquefied natural gas also may be low-carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles, are also considered as low-carbon fuels.

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the State CEQA guidelines that addresses GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate Action Plans and other greenhouse gas 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. The section also recommends consideration of several qualitative factors that 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. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.

- 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 F of the CEQA Guidelines.
- OPR is 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."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports must specifically consider a project's energy use and energy efficiency potential.

Assembly Bill 32

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 $MMTCO_2e$. The 2020 target of 431 $MMTCO_2e$ requires the reduction of 78 $MMTCO_2e$, or approximately 16 percent from the State's projected 2020 business as usual emissions of 509 $MMTCO_2e$ (CARB 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO_2 in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

CARB's Scoping Plan that was adopted in 2009, proposes a variety of measures including: strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the year 2050.

The Cap-and-Trade Program established under the Scoping Plan sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

Executive Order S-3-05

In 2005 the California Governor issued Executive Order S 3-05, GHG Emission, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels;
- 2020: Reduce greenhouse gas emissions to 1990 levels;
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs. The State achieved its first goal of reducing GHG emissions to 2000 levels by 2010.

Assembly Bill 1493

AB 1493 or the Pavley Bill sets tailpipe GHG emissions limits for passenger vehicles in California as well as fuel economy standards and is described in more detail above in Section 5.1 under Energy Conservation Management.

6.4 Local – Imperial County

The ICAPCD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. ICAPCD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. The ICAPCD has not established formal quantitative or qualitative GHG emissions thresholds through a public rulemaking process. However, the ICAPCD has adopted the Federal PSD and Title V GHG air permitting requirements by reference for stationary sources in Regulation IX in Rules 900 and 903, which are described below.

ICAPCD Rule 900

ICAPCD Rule 900 provides procedures for issuing permits to operate for industrial projects that are subject to Title V of the Federal Clean Air Act Amendments of 1990 (Major Sources) of emissions, which is defined as a source that exceeds 100 tons per year of any regulated pollutant, including GHG emissions.

ICAPCD Rule 903

ICAPCD Rule 903 applies to any stationary source that would have the potential to emit hazardous air pollutants (HAPs). Rule 903 provides a de minimis emissions level of 20,000 tons of CO2e per year, where a stationary source that produces less emissions than the de minimis emissions levels, the source is exempt from the Rule 903 recordkeeping and reporting requirements.

7.0 ATMOSPHERIC SETTING

7.1 Regional Climate

The Project site is located within the central portion of Imperial County, which is part of the Salton Sea Air Basin (Air Basin). The Air Basin comprises the central portion of Riverside County and all of Imperial County. The Riverside County portion of the Air Basin is regulated by the South Coast Air Quality Management District (SCAQMD), and the Imperial County portion of the Air Basin is regulated by the Imperial County Air Pollution Control District (ICAPCD).

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographical features. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with physical features of the landscape to determine their movement and dispersal, and, consequently, their effect on air quality. The combination of topography and inversion layers generally prevents dispersion of air pollutants in the Air Basin. The following description of climate of Imperial County was obtained from Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter less than 10 Microns in Diameter, prepared by ICAPCD, October 23, 2018.

The climate of Imperial County is governed by the large-scale sinking and warming of air in the semi-permanent high-pressure zone of the eastern Pacific Ocean. The high-pressure ridge blocks out most mid-latitude storms, except in the winter, when it is weakest and located farthest south. The coastal mountains prevent the intrusion of any cool, damp air found in California coastal areas. Because of the barrier and weakened storms, Imperial County experiences clear skies, extremely hot summers, mild winters, and little rainfall. The sun shines, on the average, more in Imperial County than anywhere else in the United States.

Winters are mild and dry with daily average temperatures ranging between 65- and 75- degrees Fahrenheit (°F). During winter months it is not uncommon to record maximum temperatures of up to 80 80 °F. Summers are extremely hot with daily average temperatures ranging between 104 and 115 °F. It is not uncommon to record maximum temperatures of 120 °F during summer months.

The flat terrain of the valley and the strong temperature differentials created by intense solar heating, produce moderate winds and deep thermal convection. The combination of subsiding air, protective mountains, and distance from the ocean all combine to severely limit precipitation. Rainfall is highly variable, with precipitation from a single heavy storm able to exceed the entire annual total during a later drought condition. The average annual rainfall is just over three 3 inches, with most of it occurring in late summer or mid-winter.

Humidity is low throughout the year, ranging from an average of 28 percent in summer to 52 percent in winter. The large daily oscillation of temperature produces a corresponding large variation in the relative humidity. Nocturnal humidity rises to 50 to 60 percent but drops to about 10 percent during the day.

The wind in Imperial County follows two general patterns. Wind statistics indicate prevailing winds are from the west-northwest through southwest; a secondary flow maximum from the southeast is also evident. The prevailing winds from the west and northwest occur seasonally from fall through spring and are known to be from the Los Angeles area. Occasionally, Imperial County experiences periods of extremely high wind speeds. Wind speeds can exceed 31 miles per hour (mph), and this occurs most

frequently during the months of April and May. However, speeds of less than 6.8 mph account for more than one-half of the observed wind measurements.

7.2 Monitored Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. The air quality at any location in the Air Basin is determined by the release of pollutants throughout the Air Basin as well as from air pollutants that travel from the coastal areas and Mexico to the Air Basin. The ICAPCD operates a network of monitoring stations throughout the County that continuously monitor ambient levels of criteria pollutants in compliance with federal monitoring regulations.

Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the Project site, have been used: Brawley-220 Main Street Monitoring Station (Brawley Station), Westmorland Monitoring Station (Westmorland Station) and El Centro – 9th Street Monitoring Station (El Centro Station)

The Brawley Station is located approximately 2.9 miles south of the project site at 220 Main Street, Brawley, the Westmorland Station is located approximately 6.4 miles west of the project site at 202 W First Street, Westmorland, and the El Centro Station is located approximately 15.7 miles south of the project site at 150 9th Street, El Centro. PM10 and PM2.5 were measured at the Brawley Station, ozone was measured at the Westmorland Station, and NO_2 was measured at the El Centro Station. It should be noted that due to the air monitoring stations' distances from the project site, recorded air pollution levels at the air monitoring stations reflect with varying degrees of accuracy local air quality conditions at the project site.

Table E and shows the most recent three years of monitoring data from CARB. CO measurements have not been provided, since CO is currently in attainment in the Air Basin and monitoring of CO within the Air Basin ended on March 31, 2013.

Table E – Local Area Air Quality Monitoring Summary

	Year[1]		
Pollutant (Standard)	**2018**	**2019**	**2020**
Ozone: [1]			
Maximum 1-Hour Concentration (ppm)	0.086	0.071	0.067
Days > CAAQS (0.09 ppm)	0	0	0
Maximum 8-Hour Concentration (ppm)	0.068	0.060	0.059
Days > NAAQS (0.070 ppm)	0	0	0
Days > CAAQs (0.070 ppm)	0	0	0
Nitrogen Dioxide: [2]			
Maximum 1-Hour Concentration (ppb)	34.1	41.4	44.8
Days > NAAQS (100 ppb)	0	0	0
Days > CAAQS (180 ppb)	0	0	0
Inhalable Particulates (PM10) :[3]			
Maximum 24-Hour National Measurement (ug/m^3)	407.0	324.4	166.0

Pollutant (Standard)	Year[1] 2018	2019	2020
Days > NAAQS (150 ug/m^3)	13	2	2
Days > CAAQS (50 ug/m^3)	106	53	73
Annual Arithmetic Mean (AAM) (ug/m^3)	52.2	35.8	39.0
Annual > NAAQS (50 ug/m^3)	**Yes**	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):[3]			
Maximum 24-Hour National Measurement (ug/m^3)	55.1	28.9	23.7
Days > NAAQS (35 ug/m^3)	**2**	0	0
Annual Arithmetic Mean (AAM) (ug/m^3)	10.4	8.3	9.4
Annual > NAAQS and CAAQS (12 ug/m^3)	No	No	No

Notes: Exceedances are listed in **bold.** CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.
[1] Data obtained from the Westmorland Station.
[2] Data obtained from the El Centro Station.
[3] Data obtained from the Brawley Station.
Source: http://www.arb.ca.gov/adam/

Ozone

During the last three years, the State 1-hour and 8-hour concentration standards for ozone have not been exceeded at the Westmorland Station. The Federal 8-hour ozone standard has not been exceeded over the last three years at the Westmorland Station. Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

Nitrogen Dioxide

The El Centro Station did not record an exceedance of either the Federal or State 1-hour NO_2 standards for the last three years.

Particulate Matter

The State 24-hour concentration standard for PM10 has been exceeded between 53 and 106 days per year over the past three years at the Brawley Station. Over the past three years the Federal 24-hour standard for PM10 has been exceeded between 2 and 13 days per year over the past three years at the Brawley Station. The annual PM10 concentration at the Brawley Station has exceeded the State standard for the past three years and has exceeded the Federal standard for only one of the past three years.

Over the past three years the 24-hour concentration standard for PM2.5 has been exceeded between 0 and 2 days each year over the past three years at the Brawley Station. The annual PM2.5 concentrations at the Brawley Station has not exceeded either the State or Federal standard for the past three years. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

8.0 MODELING PARAMETERS AND ASSUMPTIONS

8.1 CalEEMod Model Input Parameters

The criteria air pollution and GHG emissions impacts created by the proposed project have been analyzed through use of CalEEMod Version 2020.4.0. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2017 computer program to calculate the emission rates specific for Imperial County for employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy equipment operations. EMFAC2017 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour.

The project characteristics in the CalEEMod model were set to a project location of Imperial County, a Climate Zone of 10, and utility company of Imperial Irrigation District. and an opening year of 2023 was utilized in this analysis.

Land Use Parameters

The proposed project would consist of development of a solar energy facility that would include installation of 106,652 PV panels, gen-tie lines via underground conduits onsite and a 1.6 mile long overhead power lines and possible fiber optic cable from southwest corner to the North Brawley 1 Substation, construction of the 100,800 square foot BESS building that would be located at the southwest corner of the project site, and construction of a 1.2-acre substation that would include an air conditioned control room with a 20 kV backup generator for the HVAC system. The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table F.

Table F – CalEEMod Land Use Parameters

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size[1]	Lot Acreage[2]	Building/Paving (square feet)
Solar Panels	Other Non-Asphalt Surfaces	223.49 AC	223.49	9,735,224
BESS Building	Refrigerated Warehouse – No Rail	100.80 TSF	2.31	100,800
Substation	Manufacturing	52.27 TSF	1.20	52,270
Offsite Overhead Power Lines	Other Non-Asphalt Surfaces	9.7 AC	9.70	422,532

Notes:
[1] DU = Dwelling Unit; AC = Acres
[2] Lot acreage calculated based on the total project site area of 227-acres and total offsite power line installation area of 9.7 acres (1.6 miles x 50 feet wide).

Construction Parameters

Construction activities have been modeled as starting in December 2021 and taking eight months to complete. The phases of construction activities that have been analyzed are detailed below and include: 1) Site Preparation; 2) PV System Installation and Testing, and 3) Site Clean-up and Restoration.

The following On-Road Fugitive Dust construction parameters were revised in the CalEEMod model: (1) The percent on-road pavement was changed to 85 percent to account for Best Avenue that is adjacent to the project site being paved; and (2) The Material Silt Content was changed to 3 percent in order to

account for ICAPCD Rule 805 F.1.c that requires the installation of gravel or other low silt material with less than 5 percent silt content on all onsite roads.

The CalEEMod model provides the selection of "mitigation" to account for project conditions that would result in less emissions than a project without these conditions, however it should be noted that this "mitigation" may represent regulatory requirements. This includes: (1) Required adherence to ICAPCD Rule 801, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions, that was modeled in CalEEMod with selection of mitigation of water all exposed areas two times per day; and (2) Required adherence to ICAPCD Rule 805 F.1.d that requires the application of water one or more times daily to unpaved roads that was modeled in CalEEMod with selection of Unpaved Road Mitigation of 7 percent moisture content and maximum vehicle speed of 15 miles per hour on unpaved roads. Since the 15 mile per hour speed on unpaved roads is not explicitly required in ICAPCD Rule 805, Project Design Feature 6 has been included in this analysis to ensure this limitation is adhered to.

Site Preparation

The site preparation phase would include the renovation of existing dirt roads to all-weather surfaces (to meet the County standards) from Best Avenue to the City of Brawley wastewater treatment plant. The site preparation phase would begin with clearing of existing brush and installation of fencing around the Project boundary. The site preparation phase is anticipated to start December 2021 and was based on occurring over one month. The site preparation phase would generate up to 240 worker trips per day. In addition, 6 vendor trips per day were added to the CalEEMod model, in order to account for water truck emissions. The onsite equipment was modeled as consisting of two bore/drill rigs, two excavators, three rubber-tired dozers, and four of either tractors, loaders, or backhoes.

PV System Installation and Testing

The PV system Installation and testing phase includes installation of mounting posts, assembling the structural components, mounting PV modules, and wiring. This phase would occur after completion of the site preparation phase and was modeled as occurring over six months. This phase was modeled as a Building Construction phase in CalEEMod. This phase would generate up to 240 worker trips per day and up to 300 vendor truck trips per day. The onsite equipment was modeled as consisting of two aerial lifts, one air compressor, two cranes, three forklifts, one generator set, one grader, two off-highway trucks, one welder, and three of either tractors, loaders, or backhoes.

Site Clean-up and Restoration

The site clean-up and restoration phase would include removal of all waste material and debris from the project site as shredding and distributing the previously cleared vegetation over the project site, and the roads would be left in a condition equal or better than their preconstruction condition. This phase would occur after the PV system installation phase and was modeled as occurring over one month. This phase was modeled as a Grading phase in CalEEMod. This phase would generate up to 240 worker trips per day. In addition, 6 vendor trips per day were added to the CalEEMod model, in order to account for water truck emissions. The onsite equipment was modeled as consisting of two graders, two rubber-tired dozers, two rubber-tired loaders, and two of either tractors, loaders, or backhoes.

Operational Emissions Modeling

Once fully constructed, the proposed project would be operated on an unstaffed basis and be monitored remotely from the Brawley Geothermal Power Plant control room, 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 up to 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.

The operations-related criteria air pollutant emissions and GHG emissions created by the proposed project have been analyzed through use of the CalEEMod model. The proposed project was analyzed in the CalEEMod model based on the land use parameters provided above and the parameters entered for each operational source is described below.

Mobile Sources

Mobile sources include emissions the additional vehicle miles generated from the proposed project. It is anticipated that the washing of the panels would generate up to 40 trips per day that would occur four times per year. However, in order to provide a worst-case analysis, it was assumed that these trips would occur once per week.

Area Sources

Area sources include emissions from consumer products, landscape equipment, and architectural coatings. Since no workers will typically be onsite, the consumer product emissions were set to zero. No other changes were made to the default area source parameters in the CalEEMod model.

Energy Usage

Energy usage includes emissions from electricity and natural gas used onsite. The natural gas emission rates were set to zero, since no natural gas will be used onsite. For electricity use, the proposed solar PV panels system is rated at 40 mega-watts (MW). Since the CalEEMod model requires that the total kilowatt-hours (kWh) per year generated by the solar panels be entered into the model, the 40 MW were converted to 40,000 kW panels and was then multiplied by 8 hours, to provide a conservative average hours per day of sunlight that the solar panels will generate electricity and then divided by 1.2 to account for the loss associated with converting the direct current (DC) power from the solar panels to the alternating current (AC) power on the electrical grid and then multiplying by 365 days, which resulted in the proposed solar panels generating 97,333,333 kilowatt-hours per year that was entered into the CalEEMod model under solar panel mitigation.

Since according to the BESS system specifications, the air conditioning units and power conversion associated with the proposed BESS will not use more than 2 percent of the electricity stored, the calculated 97,333,333 kWh generated by the solar panels was multiplied by 2 percent, which results in the proposed project utilizing 1,946,667 kWh per year that was entered into the CalEEMod.

Solid Waste

Waste includes the GHG emissions associated with the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. Since no workers would typically be onsite, no waste is anticipated to be generated from the project. As such, solid waste generation was set to zero in CalEEMod.

Water and Wastewater

According to the Project Description for the proposed project, estimated annual water consumption for operation and maintenance of the proposed Project, including periodic PV module washing, would be approximately 0.81-acre feet (263,939 gallons) annually, which would be trucked to the Project site as needed. As such, the water usage in CalEEMod was set to 263,939 gallons per year.

Backup Diesel Generator

The proposed project would include the installation of a 20 kW backup diesel-powered generator to provide continuous power to the control room and associated HVAC system for the proposed substation. Since the exact model has not yet been determined, a search for 20 kW diesel generators found that the horsepower ranges between 50 and 62 horsepower, and in order to provide a worst-case analysis, a 62 horsepower generator was analyzed in CalEEMod. Backup generators typically cycle on for 30 minutes on a weekly basis in order to keep the engine lubricated and ready to use in case of a power outage. The typical cycling of a backup generator would operate for approximately 26 hours per year. The backup diesel generator was modeled in CalEEMod based on a 62 horsepower engine, a 0.73 load factor, 0.5 hour per day, and 26 hours per year.

8.2 Energy Use Calculations

The proposed project is anticipated to consume energy during both construction and operation of the proposed project and the parameters utilized to calculate energy use from construction and operation of the proposed project are detailed separately below.

Construction-Related Energy Use

Construction of the proposed project is anticipated to use energy in the forms of petroleum fuel for both off-road equipment as well as from the transport of workers and materials to and from the project site and the calculations for each source are described below.

Off-Road Construction Equipment

The off-road construction equipment fuel usage was calculated through use of the CalEEMod model's default off-road equipment assumptions detailed above in Section 8.1. For each piece of off-road equipment, the fuel usage was calculated through use of the *2017 Off-road Diesel Emission Factors* spreadsheet, prepared by CARB[4]. The Spreadsheet provides the following formula to calculate fuel usage from off-road equipment:

Fuel Used = Load Factor x Horsepower x Total Operational Hours x BSFC / Unit Conversion

Where:

Load Factor - Obtained from CalEEMod default values

Horsepower – Obtained from CalEEMod default values

Total Operational Hours – Calculated by multiplying CalEEMod default daily hours by CalEEMod default number of working days for each phase of construction

BSFC – Brake Specific Fuel Consumption (pounds per horsepower-hour) – If less than 100 Horsepower = 0.408, if greater than 100 Horsepower = 0.367

4 Obtained from: https://ww3.arb.ca.gov/msei/ordiesel.htm

Unit Conversion – Converts pounds to gallons = 7.109

Table G shows the off-road construction equipment fuel calculations based on the above formula. Table G shows that the off-road equipment utilized during construction of the proposed project would consume 84,890 gallons of fuel.

Table G – Off-Road Equipment and Fuel Consumption from Construction of the Proposed Project

Equipment Type	Equipment Quantity	Horse-power	Load Factor	Operating Hours per Day	Total Operational Hours[1]	Fuel Used (gallons)
Site Preparation						
Bore/Drill Rig	2	221	0.50	8	368	2,110
Excavators	2	158	0.38	8	368	1,141
Rubber Tired Dozers	3	247	0.40	8	552	2,815
Tractors/Loaders/Backhoes	4	97	0.37	8	736	1,516
PV System Installation and Testing						
Aerial Lifts	2	63	0.31	8	2,064	2,300
Air Compressor	1	78	0.48	8	1,032	2,218
Cranes	2	231	0.29	8	2,064	7,138
Forklifts	3	89	0.20	8	3,096	3,163
Generator Set	1	84	0.74	8	1,032	3,682
Graders	1	187	0.41	8	1,032	4,072
Off-Hwy Trucks	2	402	0.38	8	2,064	16,358
Tractors/Loaders/Backhoes	3	97	0.37	8	3,096	6,377
Welders	1	46	0.45	8	1,032	1,226
Site Clean-up and Restoration						
Graders	2	187	0.41	8	2,064	8,169
Rubber Tired Dozers	2	247	0.40	8	2,064	10,527
Rubber Tired Loaders	2	203	0.36	8	2,064	7,826
Tractors/Loaders/Backhoes	2	97	0.37	8	2,064	4,251
	Total Off-Road Equipment Fuel Used during Construction (gallons)					**84,890**

Notes:
[1] Based on: 23 days for Site Preparation; 129 days for PV System Installation and Testing; 21 days for Site Cleanup and Restoration.
Source: CalEEMod Version 2020.4.0 (see Appendix A); CARB, 2017.

On-Road Construction-Related Vehicle Trips

The on-road construction-related vehicle trips fuel usage was calculated through use of the construction vehicle trip assumptions from the CalEEMod model run as detailed above in Section 8.1. The calculated total construction miles was then divided by the fleet average for Imperial County miles per gallon rates for the year 2021 calculated through use of the EMFAC2017 model (https://www.arb.ca.gov/emfac/2017/) and the EMFAC2017 model printouts are shown in Appendix B. The worker trips were based on the entire fleet average miles per gallon rate for gasoline powered vehicles and the vendor trips were based on the Heavy-Heavy Duty Truck (HHDT), Medium Duty Vehicle (MDV), and Medium Heavy-Duty Vehicle (MHDV) fleet average miles per gallon rate for diesel-powered vehicles. Table H shows the on-road construction vehicle trips modeled in CalEEMod and the fuel usage calculations.

Table H shows that the on-road construction-related vehicle trips would consume 57,078 gallons of fuel and as detailed above, Table G shows that the off-road construction equipment would consume 84,890 gallons of fuel. This would result in the total consumption of 141,968 gallons of petroleum fuel from construction of the proposed project.

Table H – On-Road Vehicle Trips and Fuel Consumption from Construction of the Proposed Project

Vehicle Trip Types	Daily Trips	Trip Length (miles)	Total Miles per Day	Total Miles per Phase[1]	Fleet Average Miles per Gallon[2]	Fuel Used (gallons)
Site Preparation						
Worker Trips	240	7.3	1,752	40,296	25.1	1,607
Vendor Truck Trips	6	8.9	53	1,228	7.7	159
PV System Installation and Testing						
Worker Trips	240	7.3	1,752	226,008	25.1	9,015
Vendor Truck Trips	300	8.9	2,670	344,430	7.7	44,683
Site Clean-up and Restoration						
Worker Trips	240	7.3	1,752	36,792	25.1	1,468
Vendor Truck Trips	6	8.9	53	1,121	7.7	145
		Total Fuel Used from On-Road Construction Vehicles (gallons)				**57,078**

Notes:
[1] Based on: 23 days for Site Preparation; 129 days for PV System Installation and Testing; 21 days for Site Cleanup and Restoration.
[2] From EMFAC 2017 model (see Appendix B). Worker Trips based on entire fleet of gasoline vehicles and Vendor Trips based on only truck fleet of diesel vehicles.
Source: CalEEMod Version 2020.4.0; CARB, 2018.

Operations-Related Energy Use

The operation of the proposed project is anticipated to use energy in the forms of petroleum fuel and electricity and create electricity and the calculations for each source are described below. It should be noted that the project would not use any natural gas.

Operational Petroleum Fuel

The on-road operations-related vehicle trips fuel usage was calculated through use of the total annual vehicle miles traveled assumptions from the CalEEMod model run as detailed above in Section 8.1, which found that operation of the proposed project would generate 14,869 vehicle miles traveled per year. It should be noted that the CalEEMod model provides a worst-case analysis, since the proposed project would be operated on an unstaffed basis and be monitored remotely and employees would only be on-site up to four times per year to wash the panels as well as occasional maintenance activities. The calculated total operational miles were then divided by the Imperial County fleet average rate of 27.5 miles per gallon, which was calculated through use of the EMFAC2017 model and based on the year 2021. The EMFAC2017 model printouts are shown in Appendix B. Based on the above calculation methodology, operational vehicle trips generated from the proposed project would consume 541 gallons per year.

Operation of the proposed project would also consume diesel fuel from the operation of the backup generator. The company Generator Source provides a fuel consumption table for backup diesel generators[5], that shows a 20 kW generator would consume 1.3 gallons per hour with a ¾ load. As detailed

5 Obtained from: https://www.generatorsource.com/Diesel_Fuel_Consumption.aspx

above in Section 8.1, the typical maintenance cycling of the proposed diesel generator is anticipated to run 26 hours per year. This would result in the consumption of 34 gallons of diesel per year.

Operational Electricity Use

The operations-related electricity usage was calculated in the CalEEMod model run that is detailed above in Section 8.1 that found the proposed PV solar panels will generate 97,333,333 kWh per year of electricity and operation of the project will use 1,946,667 kWh per year of electricity, which would result in the net generation of 95,386,667 kWh per year of electricity.

9.0 THRESHOLDS OF SIGNIFICANCE

9.1 Criteria Pollutants

The ICAPCD CEQA Handbook (ICAPCD 2017) provides significance thresholds to assist lead agencies in determining whether a project may create a significant air quality impact. The ICAPCD CEQA Handbook defines any projects that emit criteria pollutants below significance levels as a "Tier I project" and is considered by the ICAPCD to create a less than significant adverse impact on air quality. For Tier I projects, the proposed project is required to implement a set of feasible standard mitigation measures provide in the ICAPCD CEQA Handbook. Since these measures are required for all projects in the County, these measures are considered as regulatory requirements and have been provided above in Section 1.5 as Project Design Features. For projects that meet or exceed the thresholds of significance for the operational phases of a project are called a "Tier II project" and will be deemed to have a potentially significant adverse impact on air quality.

Operational Criteria Pollutant Thresholds

The ICAPCD CEQA Handbook details that all operational emissions of a project, including motor vehicle, area source and stationary or point sources shall be quantified and compared to the thresholds shown in Table I.

Table I – ICAPCD Criteria Pollutant Thresholds of Significance for Operations

Pollutant	Tier I	Tier II
NOx and ROG	Less than 137 pounds/day	137 pounds/day and greater
PM10 and Sox	Less than 150 pounds/day	150 pounds/day and greater
CO and PM2.5	Less than 550 pounds/day	550 pounds/day and greater

Source: IPACD CEQA Handbook, Table 1 (ICAPCD, 2017).

Construction Criteria Pollutant Thresholds

The ICAPCD CEQA Handbook also establishes thresholds of significance for criteria pollutant emissions created during construction of projects. Table J provides general guidelines for determining significance of impacts created during construction of the proposed project.

Table J – ICAPCD Criteria Pollutant Thresholds of Significance for Construction

Pollutant	Threshold
PM10	150 pounds/day
ROG	75 pounds/day
NOx	100 pounds/day
CO	550 pounds/day

Source: IPACD CEQA Handbook, Table 4 (ICAPCD, 2017).

9.2 Odor Impacts

The ICAPCD CEQA Handbook states that an odor impact would occur if the proposed project exceeds the standards provided in California Health and Safety Code Sections 41700 and 41705 and ICAPCD Rule 407 that prohibit emissions from any source whatsoever in quantities of air contaminants or other material, that cause injury, detriment, or annoyance to the public health or damage to property.

For projects that would introduce sensitive receptors to a project site, the ICAPCD CEQA Handbook provides screening level distances for potential odor sources. If a project is proposed within one mile of a wastewater treatment plant, sanitary landfill, composting station, feedlot, asphalt plant, painting and coating operation, or rendering plant, a potential odor problem may result. If a project with sensitive receptors is proposed that is located within a mile of one of the above land uses, the ICAPCD should be contacted in order to receive specific information regarding any odor complaints or other odor problems with the identified potential odor source.

9.3 Energy Conservation

The 2018 amendments and additions to the CEQA Checklist includes an Energy Section that analyzes the proposed project's energy consumption in order to avoid or reduce inefficient, wasteful or unnecessary consumption of energy. Since the Energy Section was recently added, no state or local agencies have adopted specific criteria or thresholds to be utilized in an energy impact analysis. However, the 2018 *Guidelines for the Implementation of the California Environmental Quality Act,* provide the following direction on how to analyze a project's energy consumption:

> "If analysis of the project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the EIR shall mitigate that energy use. This analysis should include the project's energy use for all project phases and components, including transportation-related energy, during construction and operation. In addition to building code compliance, other relevant considerations may include, among others, the project's size, location, orientation, equipment use and any renewable energy features that could be incorporated into the project. (Guidance on information that may be included in such an analysis is presented in Appendix F.) This analysis is subject to the rule of reason and shall focus on energy use that is caused by the project. This analysis may be included in related analyses of air quality, greenhouse gas emissions, transportation or utilities in the discretion of the lead agency."

If the proposed project creates inefficient, wasteful or unnecessary consumption of energy during construction or operation activities or conflicts with a state or local plan for renewable energy or energy efficiency, then the proposed project would create a significant energy impact.

9.4 Greenhouse Gas Emissions

Neither the County of Imperial nor the ICAPCD has established significance thresholds for GHG emissions. In order to establish context in which to consider the GHG emissions created from the proposed project, this analysis reviewed guidelines used by other public agencies in California and found the most conservative GHG emissions threshold is detailed in CEQA & Climate Change, prepared by California Air Pollution Control Officers Association (CAPCOA 2008), which recommends a threshold of 900 $MTCO_2e$ per year from any project. It should also be noted that a direct comparison of construction GHG emissions with long-term thresholds would not be appropriate, since construction emissions are short-term in nature and would cease upon completion of construction. Other Air Districts, including the SCAQMD, recommend that GHG emissions from construction activities be amortized over 30 years, when construction emissions are compared to operational-related GHG emissions thresholds.

The GHG emissions analysis for both construction and operation of the proposed project can be found below in Sections 10.8 and 10.9.

10.0 IMPACT ANALYSIS

10.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality, energy, and GHG emissions would occur if the proposed project is determined to:

- 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 in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;
- Conflict with or obstruct a state or local plan for renewable energy;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

10.2 Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the applicable air quality plans, which include the 2017 Ozone SIP, 2018 PM10 Plan, and 2018 PM2.5 SIP that are described above in the air quality regulatory setting. The ICAPCD CEQA Handbook (ICAPCD 2017), details that for any project that emits less than the screening thresholds provided above in Section 9.1 for construction and operations, the project is compliant with the most current ozone and PM10 attainment plans and no further demonstration of compliance with these plans is required.

The construction and operational air emissions have been calculated through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed above in Section 7.1 and the CalEEMod model printouts are provided in Appendix A. Table K shows the maximum summer or winter daily emissions for each year of construction activities for the proposed project with implementation of the Project Design Features shown above in Section 1.5.

Table K – Construction-Related Criteria Pollutant Emissions

Construction Year	Pollutant Emissions (pounds/day)					
	ROG	NOx	CO	SO_2	PM10	PM2.5
2021	6.11	51.82	39.73	0.08	67.20	12.54
2022	4.57	39.74	36.41	0.12	128.90	14.44
Maximum Daily Emissions	**6.11**	**51.82**	**39.73**	**0.12**	**128.90**	**14.44**
ICAPCD Thresholds	**75**	**100**	**550**	**--**	**150**	**--**
Exceeds Threshold?	No	No	No	--	No	--

Source: CalEEMod Version 2020.4.0.

Table K shows that construction activities for the proposed project will not exceed the ICAPCD thresholds of significance. Therefore, a less than significant air quality impact would occur from construction of the proposed project.

The calculated maximum daily emissions created from operation of the proposed project are shown in Table L.

Table L – Operational Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**ROG**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Area Sources[1]	5.35	0.00	0.04	0.00	0.00	0.00
Energy Usage[2]	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources[3]	0.17	0.18	1.31	0.00	2.35	0.27
Backup Generator[4]	0.05	0.17	0.18	0.00	0.01	0.01
Total Emissions	**5.57**	**0.35**	**1.53**	**0.00**	**2.35**	**0.28**
ICAPCD Operational Thresholds	**137**	**137**	**550**	**150**	**150**	**550**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consist of emissions from natural gas usage (no natural gas usage during operation of the project).
[3] Mobile sources consist of emissions from vehicles and road dust.
[4] Backup Generator based on a 20 kW (62 Horsepower) diesel generator that has a cycling schedule of 30 minutes per week.
Source: Calculated from CalEEMod Version 2020.4.0.

The data provided in Table L shows that none of the analyzed criteria pollutants would exceed the ICAPCD thresholds of significance. Therefore, a less than significant air quality impact would occur from operation of the proposed project.

As shown above, both construction and operational emissions created from the proposed project would be within their respective ICAPCD thresholds. According to the ICAPCD Handbook, projects that are within the ICAPCD thresholds are consistent with the regional air quality plans. Furthermore, the standard mitigation measures provided in the ICAPCD Handbook have been incorporated into the proposed project as Project Design Features (see Section 1.5, above), and the proposed project will be required to implement all of the ICAPCD Regulation VIII, fugitive dust control measures during construction and operation of the proposed project. Furthermore, any stationary sources of emissions operated on site will be required to adhere to ICAPCD Rule 207, New and Modified Stationary Source Review and Rule 201 that require permits to construct and operate stationary sources. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plans and impacts would be less than significant.

Level of Significance

Less than significant impact.

10.3 Cumulative Net Increase in Non-Attainment Pollution

The proposed project would not 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.

The ICAPCD CEQA Handbook provides project emissions limits that are provided above in Section 9.1 for both construction and operation of projects within the County. The ICAPCD Handbook details that if the air emissions created from a project are below the air emissions thresholds shown in Section 9.1, then the proposed project's air emissions would result in a less than significant impact, provided that all standard mitigation measures listed in the ICAPCD Handbook are implemented as well as all applicable ICAPCD rules controlling emissions are adhered to.

As shown above in Table J, construction activities for the proposed project will not exceed the ICAPCD thresholds of significance for construction. Also, as shown in Table I, daily operations of the proposed project will not exceed the ICAPCD thresholds of significance for operations.

The standard mitigation measures from the ICAPCD Handbook for both construction and operations have been incorporated into the proposed project as Project Design Features 1 through 7 (see Section 1.5, above). Furthermore, the proposed project would be required to implement all of the ICAPCD Regulation VIII, fugitive dust control measures during construction and operation of the proposed project. Furthermore, any stationary sources of emissions operated on site will be required to adhere to ICAPCD Rule 207, New and Modified Stationary Source Review and Rule 201 that require permits to construct and operate stationary sources. Therefore, the proposed project would result in a less than significant cumulatively considerable net increase of any criteria pollutant.

Friant Ranch Decision

In *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (also referred to as "*Friant Ranch*"), the California Supreme Court held that when an EIR concluded that when a project would have significant impacts to air quality impacts, an EIR should "make a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." As shown in Table L above, and unlike the project at issue in the *Friant Ranch* case, the project's emissions of criteria pollutants would not exceed the ICAPCD's thresholds and would not have a significant air quality impact. Therefore, it is not necessary to connect this small project's air quality impacts to likely health impacts. However, for informational purposes this analysis considers the Court's direction as follows:

1) The air quality discussion shall describe the specific health risks created from each criteria pollutant, including diesel particulate matter.

Although it has been determined that the project would not result in significant air quality impacts, this analysis details the specific health risks created from each criteria pollutant above in Section 2.1 and specifically in Table B. In addition, the specific health risks created from diesel particulate matter is detailed above in Section 2.2 of this analysis. As such, this analysis meets the part 1 requirements of the Friant Ranch Case

2) The analysis shall identify the magnitude of the health risks created from the Project. The Ruling details how to identify the magnitude of the health risks. Specifically, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

The Friant Ranch Case found that an EIR's air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that

analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case[6] (Brief), SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). The Brief states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk, it does not necessarily mean anyone will contract cancer as a result of the Project. The Brief also cites the author of the CARB methodology, which reported that a PM2.5 methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NOX or VOC emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful.

On the other hand, for extremely large regional projects (unlike the proposed project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 pounds per day of NOx and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to ozone.

As shown above in Table K, project-related construction activities would generate a maximum of 6.11 pounds per day of VOC and 51.82 pounds per day of NOx and as shown above in Table L, operation of the proposed project would generate 5.57 pounds per day of VOC and 0.35 pounds per day NOx. The proposed project would not generate anywhere near these levels of 6,620 pounds per day of NOx or 89,190 pounds per day of VOC emissions. Therefore, the proposed project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level.

Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

Level of Significance

Less than significant impact.

10.4 Sensitive Receptors

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The nearest sensitive receptors to the project site are single-family homes located as near as 40 feet to the north side of the project site (near the northwest corner of the project site). The nearest school is Brawley

6 Obtained from: https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf

Union High School and Desert Valley High School, which is located as near as 2.7 miles south of the project site.

The IPACD CEQA Guidelines detail that any development project that is located within close proximity to sensitive receptors and where the proposed project either 1) Has the potential to emit toxic or hazardous pollutant; or 2) Exceeds the ICAPCD criteria pollutant thresholds for construction and operation of the proposed project. In addition, any proposed industrial or commercial project located within 1,000 feet of a school must be referred to the ICAPCD for review.

As detailed above in Section 10.2, the proposed project would not exceed the ICAPCD criteria pollutant threshold from either construction or operation of the proposed project. However, construction and operation of the proposed project would have the potential to emit TAC emissions, which have been analyzed separately below.

Toxic Air Contaminants Impacts from Construction

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. According to CARB methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30-year exposure period for the nearby sensitive receptors (OEHHA 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. By January, 2022, 50 percent or more of all contractors' equipment fleets must be Tier 2 or higher. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project. As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Operations-Related Sensitive Receptor Impacts

The proposed project would consist of development of a solar facility with a BESS and a substation. Although the proposed solar PV panels, the lithium batteries utilized in the BESS, and the transformers utilized in the substation are made with toxic materials, only a negligible amount of TAC emissions are emitted from off-gassing from the PV panels, which would not create TAC concentrations high enough to create a significant cancer risk from TAC emissions. In addition, the proposed project would include a

backup diesel generator, which would emit DPM emissions, which is categorized as a TAC. The backup diesel generator would be located in the southwest portion of the project site, where the nearest offsite sensitive receptor is a home on the east side of Best Avenue that located approximately 1,900 feet to the east. Due to the distance that the nearest sensitive receptor, a less than significant TAC impact would occur from the backup diesel generator. Therefore, a less than significant TAC impact would occur during the on-going operations of the proposed project and no mitigation would be required

Therefore, construction and operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Level of Significance

Less than significant impact.

10.5 Odor Emissions

The proposed project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as adherence to ICAPCD Rule 407 that limits the discharge of any emissions that create odors in quantities that would cause a nuisance or annoyance to any considerable number of persons. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The proposed project would consist of the development of solar energy facility, which does not include any components that are a known sources of odors. Therefore, a less than significant odor impact would occur and no mitigation would be required.

Level of Significance

Less than significant impact.

10.6 Energy Consumption

The proposed project would impact energy resources during construction and operation. Energy resources that would be potentially impacted include electricity, and petroleum based fuel supplies and distribution systems. The proposed project would not utilize any natural gas during either construction or operation of the proposed project, and no further analysis of natural gas is provided in this analysis. This analysis includes a discussion of the potential energy impacts of the proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. A general definition of each of these energy resources are provided below.

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands. In 2019, Imperial Irrigation District, which provides electricity to the project vicinity provided 3,322 Gigawatt-hours per year of electricity[7].

Petroleum-based fuels currently account for a majority of the California's transportation energy sources and primarily consist of diesel and gasoline types of fuels. However, the state has been working on developing strategies to reduce petroleum use. Over the last decade California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHG emissions from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, petroleum-based fuel consumption in California has declined. In 2017, 83 million gallons of gasoline and 12 million gallons of diesel was sold in Imperial County[8].

The following section calculates the potential energy consumption associated with the construction and operations of the proposed project and provides a determination if any energy utilized by the proposed project is wasteful, inefficient, or unnecessary consumption of energy resources.

Construction Energy

The construction activities for the proposed project are anticipated to include: 1) Site Preparation; 2) PV System Installation and Testing, and 3) Site Clean-up and Restoration. The proposed project would consume energy resources during construction in three (3) general forms:

7 Obtained from: http://www.ecdms.energy.ca.gov/elecbyutil.aspx
8 Obtained from: https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, as well as delivery and haul truck trips (e.g., hauling of construction waste material to off-site reuse and disposal facilities);
2. Electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power; and,
3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction-Related Electricity

During construction the proposed project would consume electricity to construct the new structures and infrastructure. Electricity would be supplied to the project site by Imperial Irrigation District (IID) and would be obtained from the existing electrical lines in the vicinity of the project site. The use of electricity from existing power lines rather than temporary diesel or gasoline powered generators would minimize impacts on energy use. Electricity consumed during project construction would vary throughout the construction period based on the construction activities being performed. Various construction activities include electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power. Such electricity demand would be temporary, nominal, and would cease upon the completion of construction. Overall, construction activities associated with the proposed project would require limited electricity consumption that would not be expected to have an adverse impact on available electricity supplies and infrastructure. Therefore, the use of electricity during project construction would not be wasteful, inefficient, or unnecessary.

The proposed project would include installation of an approximately 1.6 mile long overhead power lines from the southwest corner of the project site to the North Brawley 1 Substation, which would provide adequate capacity to handle the power generated and utilized by the proposed project. Where feasible, the new service installations and connections would be scheduled and implemented in a manner that would not result in electrical service interruptions to other properties. Compliance with County guidelines and requirements would ensure that the proposed project fulfills its responsibilities relative to infrastructure installation, coordinates any electrical infrastructure removals or relocations, and limits any impacts associated with construction of the project. Construction of the project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

Construction-Related Petroleum Fuel Use

Petroleum-based fuel usage represents the highest amount of transportation energy potentially consumed during construction, which would be utilized by both off-road equipment operating on the project site and on-road automobiles transporting workers to and from the project site and on-road trucks transporting equipment and supplies to the project site.

The off-road construction equipment fuel usage was calculated through use of the off-road equipment assumptions and fuel use assumptions shown above in Section 8.2, which found that the off-road equipment utilized during construction of the proposed project would consume 84,890 gallons of fuel.

The on-road construction trips fuel usage was calculated through use of the construction vehicle trip assumptions and fuel use assumptions shown above in Section 8.2, which found that the on-road trips generated from construction of the proposed project would consume 57,078 gallons of fuel. As such, the combined fuel used from off-road construction equipment and on-road construction trips for the proposed project would result in the consumption of 141,968 gallons of petroleum fuel. This equates to 0.15 percent of the gasoline and diesel consumed annually in Imperial County. As such, the construction-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates.

Construction activities associated with the proposed project would be required to adhere to all State and SCAQMD regulations for off-road equipment and on-road trucks, which provide minimum fuel efficiency standards. As such, construction activities for the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Impacts regarding transportation energy would be less than significant. Development of the project would not result in the need to manufacture construction materials or create new building material facilities specifically to supply the proposed project. It is difficult to measure the energy used in the production of construction materials such as asphalt, steel, and concrete, it is reasonable to assume that the production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest of minimizing the cost of doing business.

Operational Energy

The on-going operation of the proposed project would require the use of energy resources for multiple purposes including, but not limited to, heating/ventilating/air conditioning (HVAC), lighting, and electronics. Energy would also be consumed during operations related to water usage and vehicle trips.

Operations-Related Electricity

Operation of the proposed project would result in consumption and production of electricity at the project site. As detailed above in Section 8.2 the proposed PV solar panels will generate 97,333,333 kWh per year of electricity and operation of the project will use 1,946,667 kWh per year of electricity, which would result in the net generation of 95,386,667 kWh per year of electricity. This equates to 2.8 percent of the electricity consumed annually by IID. As such, the operations-related electricity use would provide a significant renewable resource for the IID and would help IID achieve the State' Renewable Portfolio Standards requirement for non-carbon sources of electricity. No impact would occur from electricity-related energy consumption from the proposed project.

Operations-Related Vehicular Petroleum Fuel Usage

Operation of the proposed project would result in increased consumption of petroleum-based fuels related to vehicular travel to and from the project site. As detailed above in Section 8.2 the proposed project would consume 541 gallons of petroleum fuel per year from vehicle travel. This equates to 0.001 percent of the gasoline and diesel consumed in Imperial County annually. As such, the operations-related petroleum use would be nominal, when compared to current petroleum usage rates

It should be noted that, the proposed project would comply with all Federal, State, and County requirements related to the consumption of transportation energy and would provide a non-carbon source of electricity to power electric vehicles in Imperial County. Thus, impacts with regard transportation energy supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

In conclusion, the proposed project would comply with regulatory compliance measures outlined by the State and County related to Air Quality, Greenhouse Gas Emissions (GHG), Transportation/Circulation, and Water Supply. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.7 Energy Plan Consistency

The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The applicable energy plan for the proposed project is the *Renewable Energy and Transmission Element County of Imperial General Plan,* Revised October 6, 2015. The proposed project's consistency with the applicable energy-related policies in the Natural Resource Element of the General Plan are shown in Table M.

Table M – Proposed Project Compliance with Applicable General Plan Energy Policies

Goals, Objectives and Policies	General Plan	Proposed Project Implementation Actions
Goal 1	Support the safe and orderly development of renewable energy while providing for the protection of environmental resources.	Consistent. The proposed project provides protection to environmental resources while helping to produce renewable energy.
Objective 1.1	The County of Imperial supports the overall goals of the Desert Renewable Energy Conservation Plan to provide a balance between the developments of renewable energy resources while preserving sensitive environmental resources within its jurisdiction.	Not Applicable. This objective is related to the County requirements.
Objective 1.2	Lessen impacts of site and design production facilities on agricultural, natural, and cultural resources.	Consistent. The proposed project impacts related to these subjects have been evaluated in the DEIR prepared for this project.
Objective 1.3	Require the use of directional geothermal drilling and "islands" when technically advisable in irrigated agricultural soils and sensitive or unique biological areas.	Not applicable. The proposed project would not include any geothermal drilling
Objective 1.4	Analyze potential impacts on agricultural, natural, and cultural resources, as appropriate.	Consistent. This DEIR prepared for this project has analyzed the potential impacts related to these subjects.
Objective 1.5	Require appropriate mitigation and monitoring for environmental issues associated with developing renewable energy facilities.	Consistent. The proposed Project provides a mitigation monitoring program.
Objective 1.6	Encourage the efficient use of water resources required in the operation of renewable energy generation facilities.	Consistent. The proposed Project will be designed to meet Title 24 Part 11 requirements that require implementation of water-efficiency measures.
Objective 1.7	Assure that development of renewable energy facilities and transmission lines comply with	Consistent. The proposed Project will be required to obtain all required air permits from

Goals, Objectives and Policies	General Plan	Proposed Project Implementation Actions
	Imperial County Air Pollution Control District's regulations and mitigation measures.	the ICAPCD and to adhere to all of the ICAPCD rules and regulations.
Goal 2	Encourage development of electrical transmission lines along routes which minimize potential environmental effects.	Consistent. Any required improvements or extensions of existing IID electrical transmission lines will occur adjacent to existing routes.
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. Any required improvements or extensions of IID electrical transmission lines will occur within existing easements or right-of-ways.
Objective 2.2	Where practicable and cost-effective, design transmission lines to minimize impacts on agricultural, natural, and cultural resources, urban areas, military operation areas, and recreational activities.	Consistent. Any required improvements or extensions of IID electrical transmission lines will occur within existing easements or right-of-ways.
Goal 3	Support development of renewable energy resources that will contribute to and enhance the economic vitality of Imperial County.	Consistent. The proposed project will provide additional employment opportunities as well as contribute to the tax base of the County, that will enhance the economic vitality of the County.
Objective 3.1	Preserve IID's Balancing Authority and local rate-making authority which allows IID to continue to provide low-cost service. Lower energy rates enhance the economic vitality in Imperial County.	Not Applicable. This measure applies to the IID.
Objective 3.2	Encourage the continued development of the mineral extraction/production industry for job development using geothermal brines from the existing and future geothermal flash power plants.	Not applicable. The proposed project would not include any geothermal activities.
Objective 3.3	Encourage the development of services and industries associated with renewable energy facilities.	Consistent. The proposed project implements this Objective.
Objective 3.4	Assure that revenues projected from proposed renewable energy facility developments are sufficient to offset operational costs to the County from that particular development.	Consistent. The proposed project would generate more revenue for the County than any costs incurred by the County.
Objective 3.5	Encourage employment of County residents by the renewable energy industries wherever and whenever possible.	Consistent. The proposed project will provide additional employment opportunities to residents in the County.
Objective 3.6	Encourage the establishment of necessary and applicable renewable energy training programs in local school systems in association with the renewable energy industry.	Not Applicable. This measure applies to the local school systems.
Objective 3.7	Evaluate environmental justice issues associated with job creation and displacement when considering the approval of renewable energy projects.	Consistent. No impacts to disadvantaged communities would occur from implementation of the proposed Project.

Goals, Objectives and Policies	General Plan	Proposed Project Implementation Actions
Goal 4	Support development of renewable energy resources that will contribute to the restoration efforts of the Salton Sea.	Not applicable. The proposed project is not located within the Salton Sea restoration area.
Objective 4.1	Prioritize the Salton Sea exposed seabed (playa) for renewable energy	Not applicable. The location of the project was chosen to be in close proximity to the existing North Brawley Geothermal Power Plant Substation.
Objective 4.2	Encourage the development of renewable energy facilities that will contribute to the reduction or elimination of airborne pollutants created by exposure of the seabed of the Salton Sea as it recedes.	Not applicable. The proposed project is not located within the Salton Sea restoration area.
Objective 4.3	Develop mitigation measures and monitoring programs to minimize impacts to avian species and other species that may be affected by renewable energy facilities constructed near the Salton Sea.	Not applicable. The proposed project is not located near the Salton Sea.
Goal 5	Encourage development of innovative renewable energy technologies that will diversify Imperial County's energy portfolio.	Consistent. The proposed project will utilize the innovative renewable technologies in its design.
Objective 5.1	Support the implementation of pilot projects intended to test or demonstrate new and innovative renewable energy production technologies.	Consistent. Although the proposed project is for full production and not a pilot project, it will demonstrate new and innovative renewable energy production technologies.
Objective 5.2	Encourage development of utility-scale distributed generation projects in the County.	Consistent. The proposed project consists of a utility-scale solar PV system with a BESS.
Goal 6	Support development of renewable energy while providing for the protection of military aviation and operations.	Consistent. The proposed project will be designed to meet all aviation requirements.
Objective 6.1	Assure that renewable energy facilities proposed in areas adjacent to military installations and training areas will be compatible with these uses.	Not Applicable. No military facilities exist in the local vicinity to the project site.
Objective 6.2	Facilitate the early exchange of project-related information with the military for proposed renewable energy facilities located within a military operations area (MOA) or within 1,000 feet of a military installation.	Not Applicable. No military facilities exist within 1,000 feet of the project site.
Objective 6.3	Assure that renewable energy facilities proposed within MOAs will not jeopardize the safety of existing residents or impact military operations.	Not Applicable. No military facilities exist in the local vicinity to the project site.
Goal 7	Actively minimize the potential for land subsidence to occur as a result of renewable energy operations.	Consistent. The proposed project will be designed to minimize land subsidence.
Objective 7.1	Require that all renewable energy facilities, where deemed appropriate, include design features that will prevent subsidence and other surface conditions from impacting existing land uses.	Consistent. The proposed project will be designed to minimize land subsidence.
Objective 7.2	For geothermal energy development facilities, establish injection standards consistent with the requirements of the California Division of Oil, Gas,	Not applicable. The proposed project would not include any geothermal energy development.

Goals, Objectives and Policies	General Plan	Proposed Project Implementation Actions
	and Geothermal Resources (CDOGGR). Request a CDOGGR subsidence review, if necessary, for consideration prior to setting injection standards.	
Objective 7.3	Require renewable energy facility permittees to establish and monitor subsidence detection networks in areas affected by permitted project activities.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.4	Require monitoring programs for determining the possibility or extent of induced subsidence.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.5	Require corrective measures, in proportion to each developer's activities, if evidence indicates that operation of geothermal energy facilities have caused, or will cause, surface impacts. In determining monitoring or mitigation requirements, the County shall consult with informed parties such as CDOGGR, County Department of Public Works, the IID, the permittee, other developers, and other experts as appropriate.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.6	Where geothermal fields have been divided into units or developers have established a cooperative agreement for reservoir management, specific production and injection requirements of individually permitted projects may be modified in accordance with both Federal and State requirements.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.7	Require seismic monitoring be performed in conjunction with major geothermal projects.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.8	Require operators of geothermal facilities analyze seismic data to determine the effects of geothermal production and injection on seismic activities within the development area.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.9	Consult with experts, such as CDOGGR, U.S. Geological Survey, geothermal industry representatives, permittees, and other developers to determine appropriate monitoring and mitigation requirements.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.10	Require operators of geothermal facilities to establish a notification system to warn or notify surrounding residents of the accidental release of potentially harmful emissions as part of an emergency response plan.	Not applicable. The proposed project would not include any geothermal energy development
Objective 7.11	Require all geothermal energy facilities to include operating procedures that would prevent detrimental impacts to geothermal reservoirs.	Not applicable. The proposed project would not include any geothermal energy development
Goal 8	Develop overlay zones that will facilitate the development of renewable energy resources while	Not Applicable. This measure is applicable to the County Planning Department.

Goals, Objectives and Policies	General Plan	Proposed Project Implementation Actions
	preserving and protecting agricultural, natural, and cultural resources. Development of overlay zones shall include coordination with Federal, State, County, Tribal governments, educational entities, the public and local industries.	
Objective 8.1	Allow for County review with appropriate development and performance standards for development of local resources within the overlay zones.	Not Applicable. This measure is applicable to the County Planning Department.
Objective 8.2	Promote the exchange of information concerning renewable energy development to be circulated between industry, County staff, and the public.	Not Applicable. This measure is applicable to the County Planning Department.

Source: County of Imperial, 2015.

As shown in Table M, the proposed project would be consistent with all applicable energy-related policies from the General Plan. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.8 Generation of Greenhouse Gas Emissions

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment and would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. Neither the County of Imperial nor the ICAPCD has established significance thresholds for GHG emissions. In order to establish context in which to consider the GHG emissions created from the proposed project, this analysis reviewed guidelines used by other public agencies in California and found the most conservative GHG emissions threshold is detailed in CEQA & Climate Change, prepared by California Air Pollution Control Officers Association (CAPCOA 2008), which recommends a threshold of 900 $MTCO_2e$ per year from any project. It should also be noted that a direct comparison of construction GHG emissions with long-term thresholds would not be appropriate, since construction emissions are short-term in nature and would cease upon completion of construction. Other Air Districts, including the SCAQMD, recommend that GHG emissions from construction activities be amortized over 30 years, when construction emissions are compared to operational-related GHG emissions thresholds.

The proposed project is anticipated to generate GHG emissions from area sources, energy usage and production, mobile sources, waste disposal, water usage, and construction equipment. The project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters detailed above in Section 8.1. A summary of the results is shown below in Table N and the CalEEMod model run is provided in Appendix C.

Table N – Project Related Greenhouse Gas Annual Emissions

Category	Greenhouse Gas Emissions (Metric Tons per Year)			
	CO_2	CH_4	N_2O	CO_2e
Area Sources[1]	0.01	0.00	0.00	0.01
Energy Usage and Production[2]	-4,299.50	-0.75	-0.09	-4,345.14
Mobile Sources[3]	5.35	0.00	0.00	5.44
Backup Generator[4]	0.61	0.00	0.00	0.62
Solid Waste[5]	0.00	0.00	0.00	0.00
Water and Wastewater[6]	0.38	0.01	0.00	0.66
Construction[7]	18.63	0.00	0.00	18.88
Total GHG Emissions	**-4,274.52**	**-0.73**	**-0.09**	**-4,319.54**
GHG Emissions Threshold of Significance[8]				**900**
Exceed Thresholds?				**No**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity used and generated onsite.
[3] Mobile sources consist of GHG emissions from vehicles.
[4] Backup Generator based on a 20 kW (62 Horsepower) diesel generator that has a cycling schedule of 30 minutes per week.
[5] Solid Waste. Since no employees would be onsite during typical operations, no solid waste is anticipated to be generated from the project.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
[8] GHG emissions threshold from CAPCOA, 2008.
Source: CalEEMod Version 2020.4.0.

The data provided in Table N shows that the proposed project would reduce GHG emissions created in Imperial County by 4,319.54 $MTCO_2e$ per year by providing a zero carbon source of electricity generation. The proposed project would not exceed the annual GHG emissions threshold of 900 $MTCO_2e$ per year. Therefore, no greenhouse gas emissions impact would occur from construction and operation of the proposed project.

Level of Significance

No impact.

10.9 Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. Neither the County of Imperial nor the ICAPCD has adopted a climate action plan to reduce GHG emissions in the proposed project area. As such, the only applicable plans for reducing GHG emissions for the proposed project area are statewide plans that include AB 32, AB 197, and SB 32. As shown above in Section 10.8, the proposed project would reduce GHG emissions created in Imperial County by 4,319.54 $MTCO_2e$ per year and would assist the County in meeting the zero carbon sources of electricity generation as required by the State's Renewable Portfolio Standards.

Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation adopted for reducing the emissions of GHGs. No impact would occur.

Level of Significance

No impact.

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APPENDIX A

CalEEMod Model Daily Printouts

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Brawley Solar Energy Facility

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	52.27	1000sqft	1.20	52,270.00	0
Refrigerated Warehouse-No Rail	100.80	1000sqft	2.31	100,800.00	0
Other Non-Asphalt Surfaces	9.70	Acre	9.70	422,532.00	0
Other Non-Asphalt Surfaces	223.49	Acre	223.49	9,735,224.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2022
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	189.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site = 227 acres. Total Offsite Power Lines = 9.7 acres

Construction Phase - Construction schedule provided by applicant

Off-road Equipment - PV System Installation: 2 Aerial Lifts, 1 Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - PV System Install: 2 Aerial Lifts, Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - Site Cleanup: 2 Graders, 2 Rubber Tired Loaders, 2 Rubber Tired Dozers, and 2 Tractors-Loaders-Backhoes

Off-road Equipment - Site Preparation: 2 Bore-Drill Rigs, 2 Excavators, 3 Rubber Tired Dozers, and 4 Tractor-Loader-Backhoe

Trips and VMT - 6 vendor trips per day added to Site Prep and Site Cleanup to account for water truck emissions. All worker trips set to 240 per day

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

On-road Fugitive Dust - 85% of trips on pavement. Per Rule ICAPCD Rule 805 F.1.c - Material Silt Content set to 3%

Grading - Total Acres Graded 227 acres (Site Preparation Phase)

Vehicle Trips - 40 daily trips on Saturdays.

Road Dust - 99% roads paved

Consumer Products - Consumer products set to zero, since no workers will typical be onsite

Energy Use - No natural gas will be used onsite. Electricity use set to 1,946,667 per year.

Water And Wastewater - The project will use 0.81 acre feet or 263,939 gallons per year.

Solid Waste - Operation of the project will not generate solid waste

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for ICAPCD Rule 801. Unpaved Road Moisture Content 7% selected to account for ICAPCD Rule 805 F.1.d. Unpaved Road vehicle speed set to 15 mph per PDF 3.

Energy Mitigation - Solar panels will generate 51,840,000 kWh-year

Stationary Sources - Emergency Generators and Fire Pumps - Emergency diesel generator - 62 hp, 0.73 load factor, 0.5 hour per day 26 hour per year

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	7
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	4,650.00	21.00
tblConstructionPhase	NumDays	465.00	129.00
tblConstructionPhase	NumDays	180.00	23.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	2.37	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	36.52	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.97	0.00
tblEnergyUse	T24E	0.95	19.31
tblEnergyUse	T24NG	15.20	0.00
tblEnergyUse	T24NG	3.22	0.00

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblGrading	AcresOfGrading	34.50	227.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblRoadDust	RoadPercentPave	50	99
tblSolidWaste	SolidWasteGenerationRate	64.81	0.00
tblSolidWaste	SolidWasteGenerationRate	94.75	0.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	1,690.00	300.00
tblTripsAndVMT	WorkerTripNumber	28.00	240.00
tblTripsAndVMT	WorkerTripNumber	20.00	240.00
tblTripsAndVMT	WorkerTripNumber	4,331.00	240.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	2.12	0.40
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	2.12	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWater	IndoorWaterUseRate	12,087,437.50	0.00
tblWater	IndoorWaterUseRate	23,310,000.00	263,939.00

2.0 Emissions Summary

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.1144	51.7576	39.7322	0.0820	170.3175	2.4518	172.7693	25.3583	2.2559	27.6142	0.0000	8,016.3379	8,016.3379	2.1660	0.0702	8,091.4105
2022	4.5657	38.2859	36.4080	0.1247	347.7005	1.5639	349.0465	35.1849	1.4389	36.4563	0.0000	12,667.9079	12,667.9079	1.5904	1.0848	13,017.1350
Maximum	**6.1144**	**51.7576**	**39.7322**	**0.1247**	**347.7005**	**2.4518**	**349.0465**	**35.1849**	**2.2559**	**36.4563**	**0.0000**	**12,667.9079**	**12,667.9079**	**2.1660**	**1.0848**	**13,017.1350**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.1144	51.7576	39.7322	0.0820	64.7451	2.4518	67.1969	10.2869	2.2559	12.5428	0.0000	8,016.3379	8,016.3379	2.1660	0.0702	8,091.4105
2022	4.5657	38.2859	36.4080	0.1247	127.5575	1.5639	128.9035	13.1706	1.4389	14.4420	0.0000	12,667.9079	12,667.9079	1.5904	1.0848	13,017.1350
Maximum	**6.1144**	**51.7576**	**39.7322**	**0.1247**	**127.5575**	**2.4518**	**128.9035**	**13.1706**	**2.2559**	**14.4420**	**0.0000**	**12,667.9079**	**12,667.9079**	**2.1660**	**1.0848**	**13,017.1350**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**62.88**	**0.00**	**62.42**	**61.26**	**0.00**	**57.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1733	0.1653	1.3072	2.3900e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8000e-003	0.2718		244.0356	244.0356	0.0125	0.0118	247.8760
Stationary	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**5.5698**	**0.3316**	**1.5313**	**2.6300e-003**	**2.3458**	**9.5400e-003**	**2.3554**	**0.2700**	**9.4200e-003**	**0.2794**		**270.1451**	**270.1451**	**0.0164**	**0.0118**	**274.0823**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1733	0.1653	1.3072	2.3900e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8000e-003	0.2718		244.0356	244.0356	0.0125	0.0118	247.8760
Stationary	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**5.5698**	**0.3316**	**1.5313**	**2.6300e-003**	**2.3458**	**9.5400e-003**	**2.3554**	**0.2700**	**9.4200e-003**	**0.2794**		**270.1451**	**270.1451**	**0.0164**	**0.0118**	**274.0823**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/1/2021	12/31/2021	5	23	
2	Site Cleanup	Grading	1/1/2022	6/30/2022	5	129	
3	PV System Installation	Building Construction	7/1/2022	7/31/2022	5	21	

Acres of Grading (Site Preparation Phase): 227

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Grading Phase): 258

Acres of Paving: 233.19

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Bore/Drill Rigs	2	8.00	221	0.50
Site Preparation	Excavators	2	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Cleanup	Graders	2	8.00	187	0.41
Site Cleanup	Rubber Tired Dozers	2	8.00	247	0.40
Site Cleanup	Rubber Tired Loaders	2	8.00	203	0.36
Site Cleanup	Tractors/Loaders/Backhoes	2	8.00	97	0.37
PV System Installation	Aerial Lifts	2	8.00	63	0.31
PV System Installation	Air Compressors	1	8.00	78	0.48
PV System Installation	Cranes	2	8.00	231	0.29
PV System Installation	Forklifts	3	8.00	89	0.20
PV System Installation	Generator Sets	1	8.00	84	0.74
PV System Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
PV System Installation	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	11	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Cleanup	8	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

PV System Installation	13	240.00	300.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					28.5329	0.0000	28.5329	11.0608	0.0000	11.0608			0.0000			0.0000
Off-Road	4.8629	50.8494	31.8458	0.0672		2.4366	2.4366		2.2417	2.2417		6,510.1656	6,510.1656	2.1055		6,562.8036
Total	**4.8629**	**50.8494**	**31.8458**	**0.0672**	**28.5329**	**2.4366**	**30.9696**	**11.0608**	**2.2417**	**13.3025**		**6,510.1656**	**6,510.1656**	**2.1055**		**6,562.8036**

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0205	0.3494	0.1436	1.4500e-003	4.2024	7.1300e-003	4.2095	0.4263	6.8300e-003	0.4331		152.7438	152.7438	1.0100e-003	0.0214	159.1493
Worker	1.2310	0.5588	7.7429	0.0134	137.5822	8.0400e-003	137.5903	13.8711	7.4000e-003	13.8785		1,353.4284	1,353.4284	0.0594	0.0488	1,369.4576
Total	**1.2515**	**0.9082**	**7.8864**	**0.0148**	**141.7846**	**0.0152**	**141.7998**	**14.2974**	**0.0142**	**14.3116**		**1,506.1723**	**1,506.1723**	**0.0604**	**0.0702**	**1,528.6069**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.8398	0.0000	12.8398	4.9774	0.0000	4.9774			0.0000			0.0000
Off-Road	4.8629	50.8494	31.8458	0.0672		2.4366	2.4366		2.2417	2.2417	0.0000	6,510.1656	6,510.1656	2.1055		6,562.8036
Total	**4.8629**	**50.8494**	**31.8458**	**0.0672**	**12.8398**	**2.4366**	**15.2764**	**4.9774**	**2.2417**	**7.2191**	**0.0000**	**6,510.1656**	**6,510.1656**	**2.1055**		**6,562.8036**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0205	0.3494	0.1436	1.4500e-003	1.5439	7.1300e-003	1.5511	0.1604	6.8300e-003	0.1673		152.7438	152.7438	1.0100e-003	0.0214	159.1493
Worker	1.2310	0.5588	7.7429	0.0134	50.3614	8.0400e-003	50.3694	5.1491	7.4000e-003	5.1565		1,353.4284	1,353.4284	0.0594	0.0488	1,369.4576
Total	**1.2515**	**0.9082**	**7.8864**	**0.0148**	**51.9053**	**0.0152**	**51.9205**	**5.3095**	**0.0142**	**5.3237**		**1,506.1723**	**1,506.1723**	**0.0604**	**0.0702**	**1,528.6069**

3.3 Site Cleanup - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1652	0.0000	14.1652	6.8495	0.0000	6.8495			0.0000			0.0000
Off-Road	3.4164	37.5037	18.1458	0.0490		1.5523	1.5523		1.4281	1.4281		4,750.4351	4,750.4351	1.5364		4,788.8448
Total	**3.4164**	**37.5037**	**18.1458**	**0.0490**	**14.1652**	**1.5523**	**15.7175**	**6.8495**	**1.4281**	**8.2776**		**4,750.4351**	**4,750.4351**	**1.5364**		**4,788.8448**

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0161	0.2892	0.1259	1.4200e-003	4.2024	4.0900e-003	4.2065	0.4263	3.9100e-003	0.4302		149.3641	149.3641	8.0000e-004	0.0208	155.5824
Worker	1.1333	0.4929	7.0125	0.0129	137.5822	7.4700e-003	137.5897	13.8711	6.8800e-003	13.8780		1,316.1816	1,316.1816	0.0533	0.0448	1,330.8706
Total	**1.1493**	**0.7822**	**7.1385**	**0.0144**	**141.7846**	**0.0116**	**141.7962**	**14.2974**	**0.0108**	**14.3082**		**1,465.5457**	**1,465.5457**	**0.0541**	**0.0656**	**1,486.4530**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3743	0.0000	6.3743	3.0823	0.0000	3.0823			0.0000			0.0000
Off-Road	3.4164	37.5037	18.1458	0.0490		1.5523	1.5523		1.4281	1.4281	0.0000	4,750.4351	4,750.4351	1.5364		4,788.8448
Total	**3.4164**	**37.5037**	**18.1458**	**0.0490**	**6.3743**	**1.5523**	**7.9266**	**3.0823**	**1.4281**	**4.5104**	**0.0000**	**4,750.4351**	**4,750.4351**	**1.5364**		**4,788.8448**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0161	0.2892	0.1259	1.4200e-003	1.5439	4.0900e-003	1.5480	0.1604	3.9100e-003	0.1643		149.3641	149.3641	8.0000e-004	0.0208	155.5824
Worker	1.1333	0.4929	7.0125	0.0129	50.3614	7.4700e-003	50.3689	5.1491	6.8800e-003	5.1559		1,316.1816	1,316.1816	0.0533	0.0448	1,330.8706
Total	**1.1493**	**0.7822**	**7.1385**	**0.0144**	**51.9053**	**0.0116**	**51.9169**	**5.3095**	**0.0108**	**5.3203**		**1,465.5457**	**1,465.5457**	**0.0541**	**0.0656**	**1,486.4530**

3.4 PV System Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4707	23.3215	23.0984	0.0408		1.1342	1.1342		1.0691	1.0691		3,883.5215	3,883.5215	0.9449		3,907.1439
Total	**2.4707**	**23.3215**	**23.0984**	**0.0408**		**1.1342**	**1.1342**		**1.0691**	**1.0691**		**3,883.5215**	**3,883.5215**	**0.9449**		**3,907.1439**

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.8027	14.4610	6.2971	0.0710	210.1182	0.2043	210.3226	21.3137	0.1955	21.5092		7,468.2049	7,468.2049	0.0402	1.0400	7,779.1206
Worker	1.1333	0.4929	7.0125	0.0129	137.5822	7.4700e-003	137.5897	13.8711	6.8800e-003	13.8780		1,316.1816	1,316.1816	0.0533	0.0448	1,330.8706
Total	**1.9359**	**14.9539**	**13.3096**	**0.0839**	**347.7005**	**0.2118**	**347.9123**	**35.1849**	**0.2024**	**35.3872**		**8,784.3864**	**8,784.3864**	**0.0934**	**1.0848**	**9,109.9911**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4707	23.3215	23.0984	0.0408		1.1342	1.1342		1.0691	1.0691	0.0000	3,883.5215	3,883.5215	0.9449		3,907.1439
Total	**2.4707**	**23.3215**	**23.0984**	**0.0408**		**1.1342**	**1.1342**		**1.0691**	**1.0691**	**0.0000**	**3,883.5215**	**3,883.5215**	**0.9449**		**3,907.1439**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.8027	14.4610	6.2971	0.0710	77.1961	0.2043	77.4004	8.0215	0.1955	8.2170		7,468.2049	7,468.2049	0.0402	1.0400	7,779.1206
Worker	1.1333	0.4929	7.0125	0.0129	50.3614	7.4700e-003	50.3689	5.1491	6.8800e-003	5.1559		1,316.1816	1,316.1816	0.0533	0.0448	1,330.8706
Total	**1.9359**	**14.9539**	**13.3096**	**0.0839**	**127.5575**	**0.2118**	**127.7693**	**13.1706**	**0.2024**	**13.3729**		**8,784.3864**	**8,784.3864**	**0.0934**	**1.0848**	**9,109.9911**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Brawley Solar Energy Facility - Imperial County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1733	0.1653	1.3072	2.3900e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8000e-003	0.2718		244.0356	244.0356	0.0125	0.0118	247.8760
Unmitigated	0.1733	0.1653	1.3072	2.3900e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8000e-003	0.2718		244.0356	244.0356	0.0125	0.0118	247.8760

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	0.00	40.32	0.00	14,869	14,869
Total	0.00	40.32	0.00	14,869	14,869

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	6.70	5.00	8.90	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No	6.70	5.00	8.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Other Non-Asphalt Surfaces	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Refrigerated Warehouse-No Rail	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Unmitigated	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.7440					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6700e-003	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Total	**5.3456**	**3.6000e-004**	**0.0395**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0845**	**0.0845**	**2.2000e-004**		**0.0901**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.7440					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6700e-003	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Total	**5.3456**	**3.6000e-004**	**0.0395**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0845**	**0.0845**	**2.2000e-004**		**0.0901**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0.5	26	62	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (50 - 75 HP)	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**0.0509**	**0.1659**	**0.1846**	**2.4000e-004**		**7.4800e-003**	**7.4800e-003**		**7.4800e-003**	**7.4800e-003**		**26.0249**	**26.0249**	**3.6500e-003**		**26.1162**

11.0 Vegetation

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Brawley Solar Energy Facility

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	52.27	1000sqft	1.20	52,270.00	0
Refrigerated Warehouse-No Rail	100.80	1000sqft	2.31	100,800.00	0
Other Non-Asphalt Surfaces	9.70	Acre	9.70	422,532.00	0
Other Non-Asphalt Surfaces	223.49	Acre	223.49	9,735,224.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2022
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	189.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site = 227 acres. Total Offsite Power Lines = 9.7 acres

Construction Phase - Construction schedule provided by applicant

Off-road Equipment - PV System Installation: 2 Aerial Lifts, 1 Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - PV System Install: 2 Aerial Lifts, Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - Site Cleanup: 2 Graders, 2 Rubber Tired Loaders, 2 Rubber Tired Dozers, and 2 Tractors-Loaders-Backhoes

Off-road Equipment - Site Preparation: 2 Bore-Drill Rigs, 2 Excavators, 3 Rubber Tired Dozers, and 4 Tractor-Loader-Backhoe

Trips and VMT - 6 vendor trips per day added to Site Prep and Site Cleanup to account for water truck emissions. All worker trips set to 240 per day

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

On-road Fugitive Dust - 85% of trips on pavement. Per Rule ICAPCD Rule 805 F.1.c - Material Silt Content set to 3%

Grading - Total Acres Graded 227 acres (Site Preparation Phase)

Vehicle Trips - 40 daily trips on Saturdays.

Road Dust - 99% roads paved

Consumer Products - Consumer products set to zero, since no workers will typical be onsite

Energy Use - No natural gas will be used onsite. Electricity use set to 1,946,667 per year.

Water And Wastewater - The project will use 0.81 acre feet or 263,939 gallons per year.

Solid Waste - Operation of the project will not generate solid waste

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for ICAPCD Rule 801. Unpaved Road Moisture Content 7% selected to account for ICAPCD Rule 805 F.1.d. Unpaved Road vehicle speed set to 15 mph per PDF 3.

Energy Mitigation - Solar panels will generate 51,840,000 kWh-year

Stationary Sources - Emergency Generators and Fire Pumps - Emergency diesel generator - 62 hp, 0.73 load factor, 0.5 hour per day 26 hour per year

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	7
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	4,650.00	21.00
tblConstructionPhase	NumDays	465.00	129.00
tblConstructionPhase	NumDays	180.00	23.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	2.37	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	36.52	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.97	0.00
tblEnergyUse	T24E	0.95	19.31
tblEnergyUse	T24NG	15.20	0.00
tblEnergyUse	T24NG	3.22	0.00

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblGrading	AcresOfGrading	34.50	227.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblRoadDust	RoadPercentPave	50	99
tblSolidWaste	SolidWasteGenerationRate	64.81	0.00
tblSolidWaste	SolidWasteGenerationRate	94.75	0.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	1,690.00	300.00
tblTripsAndVMT	WorkerTripNumber	28.00	240.00
tblTripsAndVMT	WorkerTripNumber	20.00	240.00
tblTripsAndVMT	WorkerTripNumber	4,331.00	240.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	2.12	0.40
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	2.12	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWater	IndoorWaterUseRate	12,087,437.50	0.00
tblWater	IndoorWaterUseRate	23,310,000.00	263,939.00

2.0 Emissions Summary

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	5.7537	51.8179	37.6436	0.0800	170.3175	2.4518	172.7693	25.3583	2.2559	27.6142	0.0000	7,813.7633	7,813.7633	2.1680	0.0714	7,889.2246
2022	4.2367	39.7414	34.7570	0.1228	347.7005	1.5639	349.0471	35.1849	1.4389	36.4568	0.0000	12,479.9658	12,479.9658	1.5926	1.0901	12,830.8045
Maximum	**5.7537**	**51.8179**	**37.6436**	**0.1228**	**347.7005**	**2.4518**	**349.0471**	**35.1849**	**2.2559**	**36.4568**	**0.0000**	**12,479.9658**	**12,479.9658**	**2.1680**	**1.0901**	**12,830.8045**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	5.7537	51.8179	37.6436	0.0800	64.7451	2.4518	67.1969	10.2869	2.2559	12.5428	0.0000	7,813.7633	7,813.7633	2.1680	0.0714	7,889.2246
2022	4.2367	39.7414	34.7570	0.1228	127.5575	1.5639	128.9040	13.1706	1.4389	14.4425	0.0000	12,479.9658	12,479.9658	1.5926	1.0901	12,830.8045
Maximum	**5.7537**	**51.8179**	**37.6436**	**0.1228**	**127.5575**	**2.4518**	**128.9040**	**13.1706**	**2.2559**	**14.4425**	**0.0000**	**12,479.9658**	**12,479.9658**	**2.1680**	**1.0901**	**12,830.8045**

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**62.88**	**0.00**	**62.42**	**61.26**	**0.00**	**57.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1121	0.1808	1.0443	2.1100e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8100e-003	0.2718		215.1702	215.1702	0.0131	0.0122	219.1206
Stationary	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**5.5086**	**0.3471**	**1.2684**	**2.3500e-003**	**2.3458**	**9.5400e-003**	**2.3554**	**0.2700**	**9.4300e-003**	**0.2794**		**241.2797**	**241.2797**	**0.0170**	**0.0122**	**245.3268**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1121	0.1808	1.0443	2.1100e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8100e-003	0.2718		215.1702	215.1702	0.0131	0.0122	219.1206
Stationary	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**5.5086**	**0.3471**	**1.2684**	**2.3500e-003**	**2.3458**	**9.5400e-003**	**2.3554**	**0.2700**	**9.4300e-003**	**0.2794**		**241.2797**	**241.2797**	**0.0170**	**0.0122**	**245.3268**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/1/2021	12/31/2021	5	23	
2	Site Cleanup	Grading	1/1/2022	6/30/2022	5	129	
3	PV System Installation	Building Construction	7/1/2022	7/31/2022	5	21	

Acres of Grading (Site Preparation Phase): 227

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Grading Phase): 258

Acres of Paving: 233.19

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Bore/Drill Rigs	2	8.00	221	0.50
Site Preparation	Excavators	2	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Cleanup	Graders	2	8.00	187	0.41
Site Cleanup	Rubber Tired Dozers	2	8.00	247	0.40
Site Cleanup	Rubber Tired Loaders	2	8.00	203	0.36
Site Cleanup	Tractors/Loaders/Backhoes	2	8.00	97	0.37
PV System Installation	Aerial Lifts	2	8.00	63	0.31
PV System Installation	Air Compressors	1	8.00	78	0.48
PV System Installation	Cranes	2	8.00	231	0.29
PV System Installation	Forklifts	3	8.00	89	0.20
PV System Installation	Generator Sets	1	8.00	84	0.74
PV System Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
PV System Installation	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	11	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Cleanup	8	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

PV System Installation	13	240.00	300.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					28.5329	0.0000	28.5329	11.0608	0.0000	11.0608			0.0000			0.0000
Off-Road	4.8629	50.8494	31.8458	0.0672		2.4366	2.4366		2.2417	2.2417		6,510.1656	6,510.1656	2.1055		6,562.8036
Total	**4.8629**	**50.8494**	**31.8458**	**0.0672**	**28.5329**	**2.4366**	**30.9696**	**11.0608**	**2.2417**	**13.3025**		**6,510.1656**	**6,510.1656**	**2.1055**		**6,562.8036**

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0198	0.3846	0.1478	1.4500e-003	4.2024	7.1500e-003	4.2095	0.4263	6.8400e-003	0.4331		152.8621	152.8621	9.9000e-004	0.0215	159.2931
Worker	0.8710	0.5839	5.6500	0.0114	137.5822	8.0400e-003	137.5903	13.8711	7.4000e-003	13.8785		1,150.7356	1,150.7356	0.0615	0.0499	1,167.1279
Total	**0.8908**	**0.9685**	**5.7978**	**0.0128**	**141.7846**	**0.0152**	**141.7998**	**14.2974**	**0.0142**	**14.3117**		**1,303.5976**	**1,303.5976**	**0.0625**	**0.0714**	**1,326.4210**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.8398	0.0000	12.8398	4.9774	0.0000	4.9774			0.0000			0.0000
Off-Road	4.8629	50.8494	31.8458	0.0672		2.4366	2.4366		2.2417	2.2417	0.0000	6,510.1656	6,510.1656	2.1055		6,562.8036
Total	**4.8629**	**50.8494**	**31.8458**	**0.0672**	**12.8398**	**2.4366**	**15.2764**	**4.9774**	**2.2417**	**7.2191**	**0.0000**	**6,510.1656**	**6,510.1656**	**2.1055**		**6,562.8036**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0198	0.3846	0.1478	1.4500e-003	1.5439	7.1500e-003	1.5511	0.1604	6.8400e-003	0.1673		152.8621	152.8621	9.9000e-004	0.0215	159.2931
Worker	0.8710	0.5839	5.6500	0.0114	50.3614	8.0400e-003	50.3694	5.1491	7.4000e-003	5.1565		1,150.7356	1,150.7356	0.0615	0.0499	1,167.1279
Total	**0.8908**	**0.9685**	**5.7978**	**0.0128**	**51.9053**	**0.0152**	**51.9205**	**5.3095**	**0.0142**	**5.3237**		**1,303.5976**	**1,303.5976**	**0.0625**	**0.0714**	**1,326.4210**

3.3 Site Cleanup - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1652	0.0000	14.1652	6.8495	0.0000	6.8495			0.0000			0.0000
Off-Road	3.4164	37.5037	18.1458	0.0490		1.5523	1.5523		1.4281	1.4281		4,750.4351	4,750.4351	1.5364		4,788.8448
Total	**3.4164**	**37.5037**	**18.1458**	**0.0490**	**14.1652**	**1.5523**	**15.7175**	**6.8495**	**1.4281**	**8.2776**		**4,750.4351**	**4,750.4351**	**1.5364**		**4,788.8448**

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0153	0.3181	0.1303	1.4200e-003	4.2024	4.1000e-003	4.2065	0.4263	3.9200e-003	0.4302		149.5357	149.5357	7.8000e-004	0.0209	155.7798
Worker	0.8050	0.5142	5.1442	0.0110	137.5822	7.4700e-003	137.5897	13.8711	6.8800e-003	13.8780		1,119.6573	1,119.6573	0.0555	0.0457	1,134.6712
Total	**0.8203**	**0.8323**	**5.2745**	**0.0124**	**141.7846**	**0.0116**	**141.7962**	**14.2974**	**0.0108**	**14.3082**		**1,269.1931**	**1,269.1931**	**0.0563**	**0.0666**	**1,290.4510**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3743	0.0000	6.3743	3.0823	0.0000	3.0823			0.0000			0.0000
Off-Road	3.4164	37.5037	18.1458	0.0490		1.5523	1.5523		1.4281	1.4281	0.0000	4,750.4351	4,750.4351	1.5364		4,788.8448
Total	**3.4164**	**37.5037**	**18.1458**	**0.0490**	**6.3743**	**1.5523**	**7.9266**	**3.0823**	**1.4281**	**4.5104**	**0.0000**	**4,750.4351**	**4,750.4351**	**1.5364**		**4,788.8448**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0153	0.3181	0.1303	1.4200e-003	1.5439	4.1000e-003	1.5480	0.1604	3.9200e-003	0.1644		149.5357	149.5357	7.8000e-004	0.0209	155.7798
Worker	0.8050	0.5142	5.1442	0.0110	50.3614	7.4700e-003	50.3689	5.1491	6.8800e-003	5.1559		1,119.6573	1,119.6573	0.0555	0.0457	1,134.6712
Total	**0.8203**	**0.8323**	**5.2745**	**0.0124**	**51.9053**	**0.0116**	**51.9169**	**5.3095**	**0.0108**	**5.3203**		**1,269.1931**	**1,269.1931**	**0.0563**	**0.0666**	**1,290.4510**

3.4 PV System Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4707	23.3215	23.0984	0.0408		1.1342	1.1342		1.0691	1.0691		3,883.5215	3,883.5215	0.9449		3,907.1439
Total	**2.4707**	**23.3215**	**23.0984**	**0.0408**		**1.1342**	**1.1342**		**1.0691**	**1.0691**		**3,883.5215**	**3,883.5215**	**0.9449**		**3,907.1439**

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.7672	15.9057	6.5145	0.0711	210.1182	0.2049	210.3231	21.3137	0.1960	21.5097		7,476.7870	7,476.7870	0.0390	1.0444	7,788.9894
Worker	0.8050	0.5142	5.1442	0.0110	137.5822	7.4700e-003	137.5897	13.8711	6.8800e-003	13.8780		1,119.6573	1,119.6573	0.0555	0.0457	1,134.6712
Total	**1.5722**	**16.4199**	**11.6587**	**0.0821**	**347.7005**	**0.2124**	**347.9128**	**35.1849**	**0.2029**	**35.3878**		**8,596.4443**	**8,596.4443**	**0.0945**	**1.0901**	**8,923.6606**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4707	23.3215	23.0984	0.0408		1.1342	1.1342		1.0691	1.0691	0.0000	3,883.5215	3,883.5215	0.9449		3,907.1439
Total	**2.4707**	**23.3215**	**23.0984**	**0.0408**		**1.1342**	**1.1342**		**1.0691**	**1.0691**	**0.0000**	**3,883.5215**	**3,883.5215**	**0.9449**		**3,907.1439**

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.7672	15.9057	6.5145	0.0711	77.1961	0.2049	77.4010	8.0215	0.1960	8.2175		7,476.7870	7,476.7870	0.0390	1.0444	7,788.9894
Worker	0.8050	0.5142	5.1442	0.0110	50.3614	7.4700e-003	50.3689	5.1491	6.8800e-003	5.1559		1,119.6573	1,119.6573	0.0555	0.0457	1,134.6712
Total	**1.5722**	**16.4199**	**11.6587**	**0.0821**	**127.5575**	**0.2124**	**127.7698**	**13.1706**	**0.2029**	**13.3735**		**8,596.4443**	**8,596.4443**	**0.0945**	**1.0901**	**8,923.6606**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1121	0.1808	1.0443	2.1100e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8100e-003	0.2718		215.1702	215.1702	0.0131	0.0122	219.1206
Unmitigated	0.1121	0.1808	1.0443	2.1100e-003	2.3458	1.9200e-003	2.3478	0.2700	1.8100e-003	0.2718		215.1702	215.1702	0.0131	0.0122	219.1206

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	0.00	40.32	0.00	14,869	14,869
Total	0.00	40.32	0.00	14,869	14,869

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	6.70	5.00	8.90	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No	6.70	5.00	8.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Other Non-Asphalt Surfaces	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Refrigerated Warehouse-No Rail	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Brawley Solar Energy Facility - Imperial County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Unmitigated	5.3456	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.7440					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6700e-003	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Total	**5.3456**	**3.6000e-004**	**0.0395**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0845**	**0.0845**	**2.2000e-004**		**0.0901**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.7440					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.5979					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6700e-003	3.6000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0845	0.0845	2.2000e-004		0.0901
Total	**5.3456**	**3.6000e-004**	**0.0395**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0845**	**0.0845**	**2.2000e-004**		**0.0901**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0.5	26	62	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (50 - 75 HP)	0.0509	0.1659	0.1846	2.4000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		26.0249	26.0249	3.6500e-003		26.1162
Total	**0.0509**	**0.1659**	**0.1846**	**2.4000e-004**		**7.4800e-003**	**7.4800e-003**		**7.4800e-003**	**7.4800e-003**		**26.0249**	**26.0249**	**3.6500e-003**		**26.1162**

11.0 Vegetation

APPENDIX B

EMFAC2017 Model Printouts

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: IMPERIAL
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
IMPERIAL	2021	HHDT	Aggregatec	Aggregatec	GAS	2.825263	137.49617	56.52785	0.03343
IMPERIAL	2021	LDA	Aggregatec	Aggregatec	GAS	145175.9	5643786.6	683437.9	186.6888
IMPERIAL	2021	LDT1	Aggregatec	Aggregatec	GAS	17276.41	612064.25	77482.43	24.00773
IMPERIAL	2021	LDT2	Aggregatec	Aggregatec	GAS	52024.47	1908388.1	240462.6	80.63031
IMPERIAL	2021	LHDT1	Aggregatec	Aggregatec	GAS	4280.077	144693.38	63766.77	13.54718
IMPERIAL	2021	LHDT2	Aggregatec	Aggregatec	GAS	703.9896	23736.979	10488.4	2.547752
IMPERIAL	2021	MCY	Aggregatec	Aggregatec	GAS	6622.21	59214.749	13244.42	1.502854
IMPERIAL	2021	MDV	Aggregatec	Aggregatec	GAS	45128.95	1607774.8	205347.3	82.99022
IMPERIAL	2021	MH	Aggregatec	Aggregatec	GAS	859.4062	7399.0473	85.975	1.434682
IMPERIAL	2021	MHDT	Aggregatec	Aggregatec	GAS	505.9482	28400.557	10123.01	5.522487
IMPERIAL	2021	OBUS	Aggregatec	Aggregatec	GAS	132.3029	6896.0896	2647.116	1.352893
IMPERIAL	2021	SBUS	Aggregatec	Aggregatec	GAS	30.84301	1760.5474	123.372	0.187748
IMPERIAL	2021	UBUS	Aggregatec	Aggregatec	GAS	8.282969	947.79829	33.13188	0.241693

vehicle miles per day (All Categories)	10045200	401	1,000 gall per day
		400,688	gallons per day
Fleet Avg Miles per gallon	25.1		

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: IMPERIAL
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
IMPERIAL	2021	HHDT	Aggregate	Aggregated	DSL	4859.163	727200.53	57864.68	102.13909
IMPERIAL	2021	LDA	Aggregate	Aggregated	DSL	1274.529	50425.669	6002.429	0.9672779
IMPERIAL	2021	LDT1	Aggregate	Aggregated	DSL	13.16284	292.61362	42.55079	0.0113065
IMPERIAL	2021	LDT2	Aggregate	Aggregated	DSL	259.9127	11016.192	1284.794	0.2840536
IMPERIAL	2021	LHDT1	Aggregate	Aggregated	DSL	4178.056	148628.22	52554.68	7.1691825
IMPERIAL	2021	LHDT2	Aggregate	Aggregated	DSL	1332.595	49408.266	16762.37	2.5735426
IMPERIAL	2021	MDV	Aggregate	Aggregated	DSL	896.497	36985.877	4343.927	1.2992358
IMPERIAL	2021	MH	Aggregate	Aggregated	DSL	282.4584	2576.735	28.24584	0.2323685
IMPERIAL	2021	MHDT	Aggregate	Aggregated	DSL	2054.337	118673.4	15348.12	11.096555
IMPERIAL	2021	OBUS	Aggregate	Aggregated	DSL	135.3162	9408.1492	1254.028	1.0144107
IMPERIAL	2021	SBUS	Aggregate	Aggregated	DSL	203.9511	6376.6912	2353.568	0.8660474
IMPERIAL	2021	UBUS	Aggregate	Aggregated	DSL	27.95502	3506.4503	111.8201	0.5197596

Diesel Truck (HHDT, MDV, MHDT) vehicle miles per day	882,860	115	1,000 gall per day
		114,535	gallons per day
Diesel Truck Fleet Avg Miles per gallon	7.7		

APPENDIX C

CalEEMod Model Annual Printouts

Brawley Solar Energy Facility - Imperial County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Brawley Solar Energy Facility

Imperial County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	52.27	1000sqft	1.20	52,270.00	0
Refrigerated Warehouse-No Rail	100.80	1000sqft	2.31	100,800.00	0
Other Non-Asphalt Surfaces	9.70	Acre	9.70	422,532.00	0
Other Non-Asphalt Surfaces	223.49	Acre	223.49	9,735,224.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2022
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	189.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site = 227 acres. Total Offsite Power Lines = 9.7 acres

Construction Phase - Construction schedule provided by applicant

Off-road Equipment - PV System Installation: 2 Aerial Lifts, 1 Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - PV System Install: 2 Aerial Lifts, Air Compressor, 2 Cranes, 3 Forklifts, 1 Generator Set, 1 Grader, 2 Off-Hwy Trucks, 3 Tractors-Loaders-Backhoes, 1 Welder

Off-road Equipment - Site Cleanup: 2 Graders, 2 Rubber Tired Loaders, 2 Rubber Tired Dozers, and 2 Tractors-Loaders-Backhoes

Off-road Equipment - Site Preparation: 2 Bore-Drill Rigs, 2 Excavators, 3 Rubber Tired Dozers, and 4 Tractor-Loader-Backhoe

Trips and VMT - 6 vendor trips per day added to Site Prep and Site Cleanup to account for water truck emissions. All worker trips set to 240 per day

Brawley Solar Energy Facility - Imperial County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

On-road Fugitive Dust - 85% of trips on pavement. Per Rule ICAPCD Rule 805 F.1.c - Material Silt Content set to 3%

Grading - Total Acres Graded 227 acres (Site Preparation Phase)

Vehicle Trips - 40 daily trips on Saturdays.

Road Dust - 99% roads paved

Consumer Products - Consumer products set to zero, since no workers will typical be onsite

Energy Use - No natural gas will be used onsite. Electricity use set to 1,946,667 per year.

Water And Wastewater - The project will use 0.81 acre feet or 263,939 gallons per year.

Solid Waste - Operation of the project will not generate solid waste

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for ICAPCD Rule 801. Unpaved Road Moisture Content 7% selected to account for ICAPCD Rule 805 F.1.d. Unpaved Road vehicle speed set to 15 mph per PDF 3.

Energy Mitigation - Solar panels will generate 51,840,000 kWh-year

Stationary Sources - Emergency Generators and Fire Pumps - Emergency diesel generator - 62 hp, 0.73 load factor, 0.5 hour per day 26 hour per year

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	7
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	4,650.00	21.00
tblConstructionPhase	NumDays	465.00	129.00
tblConstructionPhase	NumDays	180.00	23.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	2.37	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	36.52	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	48.51	0.00
tblEnergyUse	T24E	1.97	0.00
tblEnergyUse	T24E	0.95	19.31
tblEnergyUse	T24NG	15.20	0.00
tblEnergyUse	T24NG	3.22	0.00

Brawley Solar Energy Facility - Imperial County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblGrading	AcresOfGrading	34.50	227.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	MaterialSiltContent	8.50	3.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	VendorPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblOnRoadDust	WorkerPercentPave	50.00	85.00
tblRoadDust	RoadPercentPave	50	99
tblSolidWaste	SolidWasteGenerationRate	64.81	0.00
tblSolidWaste	SolidWasteGenerationRate	94.75	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	62.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.50
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	26.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	1,690.00	300.00
tblTripsAndVMT	WorkerTripNumber	28.00	240.00
tblTripsAndVMT	WorkerTripNumber	20.00	240.00
tblTripsAndVMT	WorkerTripNumber	4,331.00	240.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	2.12	0.40

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	2.12	0.00
tblWater	IndoorWaterUseRate	12,087,437.50	0.00
tblWater	IndoorWaterUseRate	23,310,000.00	263,939.00

2.0 Emissions Summary

Brawley Solar Energy Facility - Imperial County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0673	0.5957	0.4398	9.3000e-004	1.9054	0.0282	1.9336	0.2863	0.0259	0.3123	0.0000	82.3825	82.3825	0.0226	7.4000e-004	83.1663
2022	0.3224	2.8858	1.9135	5.3100e-003	13.2919	0.1150	13.4069	1.6918	0.1062	1.7980	0.0000	476.5250	476.5250	0.1029	0.0142	483.3328
Maximum	**0.3224**	**2.8858**	**1.9135**	**5.3100e-003**	**13.2919**	**0.1150**	**13.4069**	**1.6918**	**0.1062**	**1.7980**	**0.0000**	**476.5250**	**476.5250**	**0.1029**	**0.0142**	**483.3328**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0673	0.5957	0.4398	9.3000e-004	0.7253	0.0282	0.7535	0.1164	0.0259	0.1423	0.0000	82.3824	82.3824	0.0226	7.4000e-004	83.1662
2022	0.3224	2.8858	1.9135	5.3100e-003	4.9473	0.1150	5.0623	0.6646	0.1062	0.7708	0.0000	476.5247	476.5247	0.1029	0.0142	483.3324
Maximum	**0.3224**	**2.8858**	**1.9135**	**5.3100e-003**	**4.9473**	**0.1150**	**5.0623**	**0.6646**	**0.1062**	**0.7708**	**0.0000**	**476.5247**	**476.5247**	**0.1029**	**0.0142**	**483.3324**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**62.67**	**0.00**	**62.09**	**60.52**	**0.00**	**56.73**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**12-1-2021**	**2-28-2022**	1.5345	1.5345
2	**3-1-2022**	**5-31-2022**	1.4049	1.4049
3	**6-1-2022**	**8-31-2022**	0.9317	0.9317
		Highest	1.5345	1.5345

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9752	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	167.7322	167.7322	0.0291	3.5300e-003	169.5130
Mobile	3.4500e-003	4.5800e-003	0.0287	6.0000e-005	0.0610	5.0000e-005	0.0610	7.0100e-003	5.0000e-005	7.0600e-003	0.0000	5.3467	5.3467	2.9000e-004	2.8000e-004	5.4382
Stationary	1.3200e-003	4.3100e-003	4.8000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.6139	0.6139	9.0000e-005	0.0000	0.6160
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0837	0.2962	0.3799	8.6500e-003	2.1000e-004	0.6586
Total	**0.9800**	**8.9200e-003**	**0.0370**	**7.0000e-005**	**0.0610**	**2.5000e-004**	**0.0612**	**7.0100e-003**	**2.5000e-004**	**7.2600e-003**	**0.0837**	**173.9958**	**174.0796**	**0.0382**	**4.0200e-003**	**176.2331**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9752	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	-4,299.5009	-4,299.5009	-0.7468	-0.0905	-4,345.1483
Mobile	3.4500e-003	4.5800e-003	0.0287	6.0000e-005	0.0610	5.0000e-005	0.0610	7.0100e-003	5.0000e-005	7.0600e-003	0.0000	5.3467	5.3467	2.9000e-004	2.8000e-004	5.4382
Stationary	1.3200e-003	4.3100e-003	4.8000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.6139	0.6139	9.0000e-005	0.0000	0.6160
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0837	0.2962	0.3799	8.6500e-003	2.1000e-004	0.6586
Total	**0.9800**	**8.9200e-003**	**0.0370**	**7.0000e-005**	**0.0610**	**2.5000e-004**	**0.0612**	**7.0100e-003**	**2.5000e-004**	**7.2600e-003**	**0.0837**	**-4,293.2373**	**-4,293.1536**	**-0.7378**	**-0.0900**	**-4,338.4282**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2,567.44**	**2,566.20**	**2,031.87**	**2,339.80**	**2,561.76**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/1/2021	12/31/2021	5	23	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2	Site Cleanup	Grading	1/1/2022	6/30/2022	5	129	
3	PV System Installation	Building Construction	7/1/2022	7/31/2022	5	21	

Acres of Grading (Site Preparation Phase): 227

Acres of Grading (Grading Phase): 258

Acres of Paving: 233.19

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Bore/Drill Rigs	2	8.00	221	0.50
Site Preparation	Excavators	2	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Cleanup	Graders	2	8.00	187	0.41
Site Cleanup	Rubber Tired Dozers	2	8.00	247	0.40
Site Cleanup	Rubber Tired Loaders	2	8.00	203	0.36
Site Cleanup	Tractors/Loaders/Backhoes	2	8.00	97	0.37
PV System Installation	Aerial Lifts	2	8.00	63	0.31
PV System Installation	Air Compressors	1	8.00	78	0.48
PV System Installation	Cranes	2	8.00	231	0.29
PV System Installation	Forklifts	3	8.00	89	0.20
PV System Installation	Generator Sets	1	8.00	84	0.74
PV System Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
PV System Installation	Welders	1	8.00	46	0.45

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	11	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Cleanup	8	240.00	6.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
PV System Installation	13	240.00	300.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3281	0.0000	0.3281	0.1272	0.0000	0.1272	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0559	0.5848	0.3662	7.7000e-004		0.0280	0.0280		0.0258	0.0258	0.0000	67.9181	67.9181	0.0220	0.0000	68.4673
Total	**0.0559**	**0.5848**	**0.3662**	**7.7000e-004**	**0.3281**	**0.0280**	**0.3562**	**0.1272**	**0.0258**	**0.1530**	**0.0000**	**67.9181**	**67.9181**	**0.0220**	**0.0000**	**68.4673**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	4.3500e-003	1.6700e-003	2.0000e-005	0.0468	8.0000e-005	0.0468	4.7500e-003	8.0000e-005	4.8200e-003	0.0000	1.5940	1.5940	1.0000e-005	2.2000e-004	1.6610
Worker	0.0111	6.5600e-003	0.0719	1.4000e-004	1.5305	9.0000e-005	1.5306	0.1544	9.0000e-005	0.1545	0.0000	12.8704	12.8704	6.1000e-004	5.1000e-004	13.0380
Total	**0.0114**	**0.0109**	**0.0735**	**1.6000e-004**	**1.5773**	**1.7000e-004**	**1.5775**	**0.1591**	**1.7000e-004**	**0.1593**	**0.0000**	**14.4644**	**14.4644**	**6.2000e-004**	**7.3000e-004**	**14.6990**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1477	0.0000	0.1477	0.0572	0.0000	0.0572	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0559	0.5848	0.3662	7.7000e-004		0.0280	0.0280		0.0258	0.0258	0.0000	67.9180	67.9180	0.0220	0.0000	68.4672
Total	**0.0559**	**0.5848**	**0.3662**	**7.7000e-004**	**0.1477**	**0.0280**	**0.1757**	**0.0572**	**0.0258**	**0.0830**	**0.0000**	**67.9180**	**67.9180**	**0.0220**	**0.0000**	**68.4672**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	4.3500e-003	1.6700e-003	2.0000e-005	0.0172	8.0000e-005	0.0173	1.7900e-003	8.0000e-005	1.8700e-003	0.0000	1.5940	1.5940	1.0000e-005	2.2000e-004	1.6610
Worker	0.0111	6.5600e-003	0.0719	1.4000e-004	0.5605	9.0000e-005	0.5606	0.0574	9.0000e-005	0.0575	0.0000	12.8704	12.8704	6.1000e-004	5.1000e-004	13.0380
Total	**0.0114**	**0.0109**	**0.0735**	**1.6000e-004**	**0.5777**	**1.7000e-004**	**0.5778**	**0.0592**	**1.7000e-004**	**0.0593**	**0.0000**	**14.4644**	**14.4644**	**6.2000e-004**	**7.3000e-004**	**14.6990**

3.3 Site Cleanup - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.9137	0.0000	0.9137	0.4418	0.0000	0.4418	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2204	2.4190	1.1704	3.1600e-003		0.1001	0.1001		0.0921	0.0921	0.0000	277.9642	277.9642	0.0899	0.0000	280.2117
Total	**0.2204**	**2.4190**	**1.1704**	**3.1600e-003**	**0.9137**	**0.1001**	**1.0138**	**0.4418**	**0.0921**	**0.5339**	**0.0000**	**277.9642**	**277.9642**	**0.0899**	**0.0000**	**280.2117**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-003	0.0202	8.2300e-003	9.0000e-005	0.2622	2.6000e-004	0.2625	0.0266	2.5000e-004	0.0269	0.0000	8.7440	8.7440	5.0000e-005	1.2200e-003	9.1088
Worker	0.0576	0.0324	0.3658	7.6000e-004	8.5842	4.8000e-004	8.5847	0.8658	4.4000e-004	0.8663	0.0000	70.2210	70.2210	3.0600e-003	2.6300e-003	71.0819
Total	**0.0586**	**0.0526**	**0.3740**	**8.5000e-004**	**8.8465**	**7.4000e-004**	**8.8472**	**0.8924**	**6.9000e-004**	**0.8931**	**0.0000**	**78.9650**	**78.9650**	**3.1100e-003**	**3.8500e-003**	**80.1907**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4111	0.0000	0.4111	0.1988	0.0000	0.1988	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2204	2.4190	1.1704	3.1600e-003		0.1001	0.1001		0.0921	0.0921	0.0000	277.9639	277.9639	0.0899	0.0000	280.2113
Total	**0.2204**	**2.4190**	**1.1704**	**3.1600e-003**	**0.4111**	**0.1001**	**0.5113**	**0.1988**	**0.0921**	**0.2909**	**0.0000**	**277.9639**	**277.9639**	**0.0899**	**0.0000**	**280.2113**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Cleanup - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-003	0.0202	8.2300e-003	9.0000e-005	0.0964	2.6000e-004	0.0967	0.0100	2.5000e-004	0.0103	0.0000	8.7440	8.7440	5.0000e-005	1.2200e-003	9.1088
Worker	0.0576	0.0324	0.3658	7.6000e-004	3.1435	4.8000e-004	3.1439	0.3217	4.4000e-004	0.3222	0.0000	70.2210	70.2210	3.0600e-003	2.6300e-003	71.0819
Total	**0.0586**	**0.0526**	**0.3740**	**8.5000e-004**	**3.2398**	**7.4000e-004**	**3.2406**	**0.3318**	**6.9000e-004**	**0.3325**	**0.0000**	**78.9650**	**78.9650**	**3.1100e-003**	**3.8500e-003**	**80.1907**

3.4 PV System Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0259	0.2449	0.2425	4.3000e-004		0.0119	0.0119		0.0112	0.0112	0.0000	36.9923	36.9923	9.0000e-003	0.0000	37.2173
Total	**0.0259**	**0.2449**	**0.2425**	**4.3000e-004**		**0.0119**	**0.0119**		**0.0112**	**0.0112**	**0.0000**	**36.9923**	**36.9923**	**9.0000e-003**	**0.0000**	**37.2173**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.1200e-003	0.1640	0.0670	7.5000e-004	2.1343	2.1500e-003	2.1365	0.2166	2.0500e-003	0.2187	0.0000	71.1722	71.1722	3.8000e-004	9.9300e-003	74.1416
Worker	9.3700e-003	5.2800e-003	0.0595	1.2000e-004	1.3974	8.0000e-005	1.3975	0.1410	7.0000e-005	0.1410	0.0000	11.4313	11.4313	5.0000e-004	4.3000e-004	11.5715
Total	**0.0175**	**0.1693**	**0.1266**	**8.7000e-004**	**3.5318**	**2.2300e-003**	**3.5340**	**0.3576**	**2.1200e-003**	**0.3597**	**0.0000**	**82.6035**	**82.6035**	**8.8000e-004**	**0.0104**	**85.7131**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0259	0.2449	0.2425	4.3000e-004		0.0119	0.0119		0.0112	0.0112	0.0000	36.9922	36.9922	9.0000e-003	0.0000	37.2172
Total	**0.0259**	**0.2449**	**0.2425**	**4.3000e-004**		**0.0119**	**0.0119**		**0.0112**	**0.0112**	**0.0000**	**36.9922**	**36.9922**	**9.0000e-003**	**0.0000**	**37.2172**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 PV System Installation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.1200e-003	0.1640	0.0670	7.5000e-004	0.7845	2.1500e-003	0.7867	0.0817	2.0500e-003	0.0837	0.0000	71.1722	71.1722	3.8000e-004	9.9300e-003	74.1416
Worker	9.3700e-003	5.2800e-003	0.0595	1.2000e-004	0.5117	8.0000e-005	0.5118	0.0524	7.0000e-005	0.0525	0.0000	11.4313	11.4313	5.0000e-004	4.3000e-004	11.5715
Total	**0.0175**	**0.1693**	**0.1266**	**8.7000e-004**	**1.2963**	**2.2300e-003**	**1.2985**	**0.1340**	**2.1200e-003**	**0.1362**	**0.0000**	**82.6035**	**82.6035**	**8.8000e-004**	**0.0104**	**85.7131**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.4500e-003	4.5800e-003	0.0287	6.0000e-005	0.0610	5.0000e-005	0.0610	7.0100e-003	5.0000e-005	7.0600e-003	0.0000	5.3467	5.3467	2.9000e-004	2.8000e-004	5.4382
Unmitigated	3.4500e-003	4.5800e-003	0.0287	6.0000e-005	0.0610	5.0000e-005	0.0610	7.0100e-003	5.0000e-005	7.0600e-003	0.0000	5.3467	5.3467	2.9000e-004	2.8000e-004	5.4382

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	0.00	40.32	0.00	14,869	14,869
Total	0.00	40.32	0.00	14,869	14,869

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	6.70	5.00	8.90	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No	6.70	5.00	8.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Other Non-Asphalt Surfaces	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771
Refrigerated Warehouse-No Rail	0.516491	0.059473	0.180350	0.154783	0.028319	0.006956	0.008567	0.016600	0.000919	0.000123	0.022855	0.000793	0.003771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	-4,299.5009	-4,299.5009	-0.7468	-0.0905	-4,345.1483
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	167.7322	167.7322	0.0291	3.5300e-003	169.5130
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.94645e+006	167.7322	0.0291	3.5300e-003	169.5130
Total		**167.7322**	**0.0291**	**3.5300e-003**	**169.5130**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	-1.296e+007	-1,116.8083	-0.1940	-0.0235	-1,128.6653
Other Non-Asphalt Surfaces	-1.296e+007	-2,233.6166	-0.3880	-0.0470	-2,257.3307
Refrigerated Warehouse-No Rail	-1.10136e+007	-949.0761	-0.1649	-0.0200	-959.1523
Total		**-4,299.5009**	**-0.7468**	**-0.0905**	**-4,345.1483**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9752	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003
Unmitigated	0.9752	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6566					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003
Total	**0.9752**	**3.0000e-005**	**3.5500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.9000e-003**	**6.9000e-003**	**2.0000e-005**	**0.0000**	**7.3600e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6566					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9000e-003	6.9000e-003	2.0000e-005	0.0000	7.3600e-003
Total	**0.9752**	**3.0000e-005**	**3.5500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.9000e-003**	**6.9000e-003**	**2.0000e-005**	**0.0000**	**7.3600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.3799	8.6500e-003	2.1000e-004	0.6586
Unmitigated	0.3799	8.6500e-003	2.1000e-004	0.6586

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0.263939 / 0	0.3799	8.6500e-003	2.1000e-004	0.6586
Total		**0.3799**	**8.6500e-003**	**2.1000e-004**	**0.6586**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0.263939 / 0	0.3799	8.6500e-003	2.1000e-004	0.6586
Total		**0.3799**	**8.6500e-003**	**2.1000e-004**	**0.6586**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Brawley Solar Energy Facility - Imperial County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0.5	26	62	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	1.3200e-003	4.3100e-003	4.8000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	0.6139	0.6139	9.0000e-005	0.0000	0.6160
Total	**1.3200e-003**	**4.3100e-003**	**4.8000e-003**	**1.0000e-005**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**0.6139**	**0.6139**	**9.0000e-005**	**0.0000**	**0.6160**

11.0 Vegetation

BIOLOGICAL TECHNICAL REPORT FOR THE BRAWLEY SOLAR PROJECT IMPERIAL COUNTY, CALIFORNIA

Prepared for:

ORNI 30, LLC
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Prepared by:

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August 2021

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SECTION 1.0 – INTRODUCTION

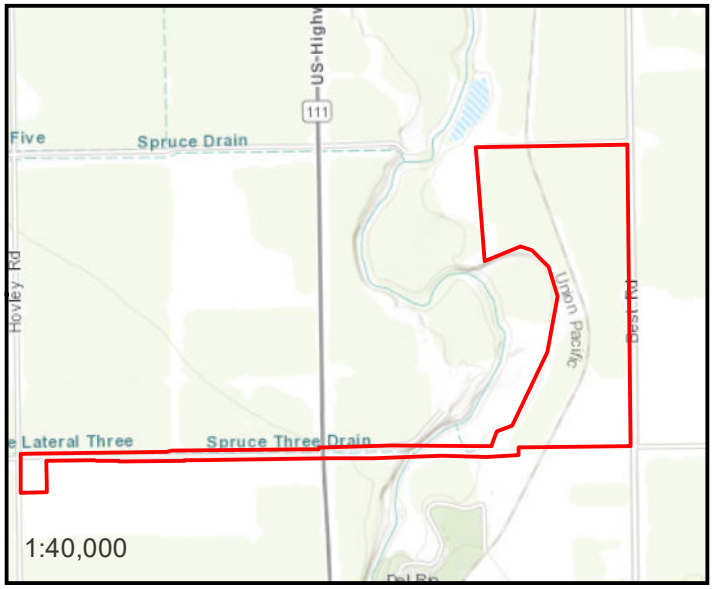
Chambers Group, Inc. (Chambers Group) was retained by ORNI 30, LLC (ORNI) to conduct a literature review and reconnaissance-level survey for the development of the Brawley Solar Project (Project). The survey identified vegetation communities, potential waters of the state and waters of the U.S., wetlands, and potential for the occurrence of sensitive species or habitats that could support sensitive wildlife species. Information contained in this Biological Technical Report is in accordance with accepted scientific and technical standards that are consistent with the requirements of United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW).

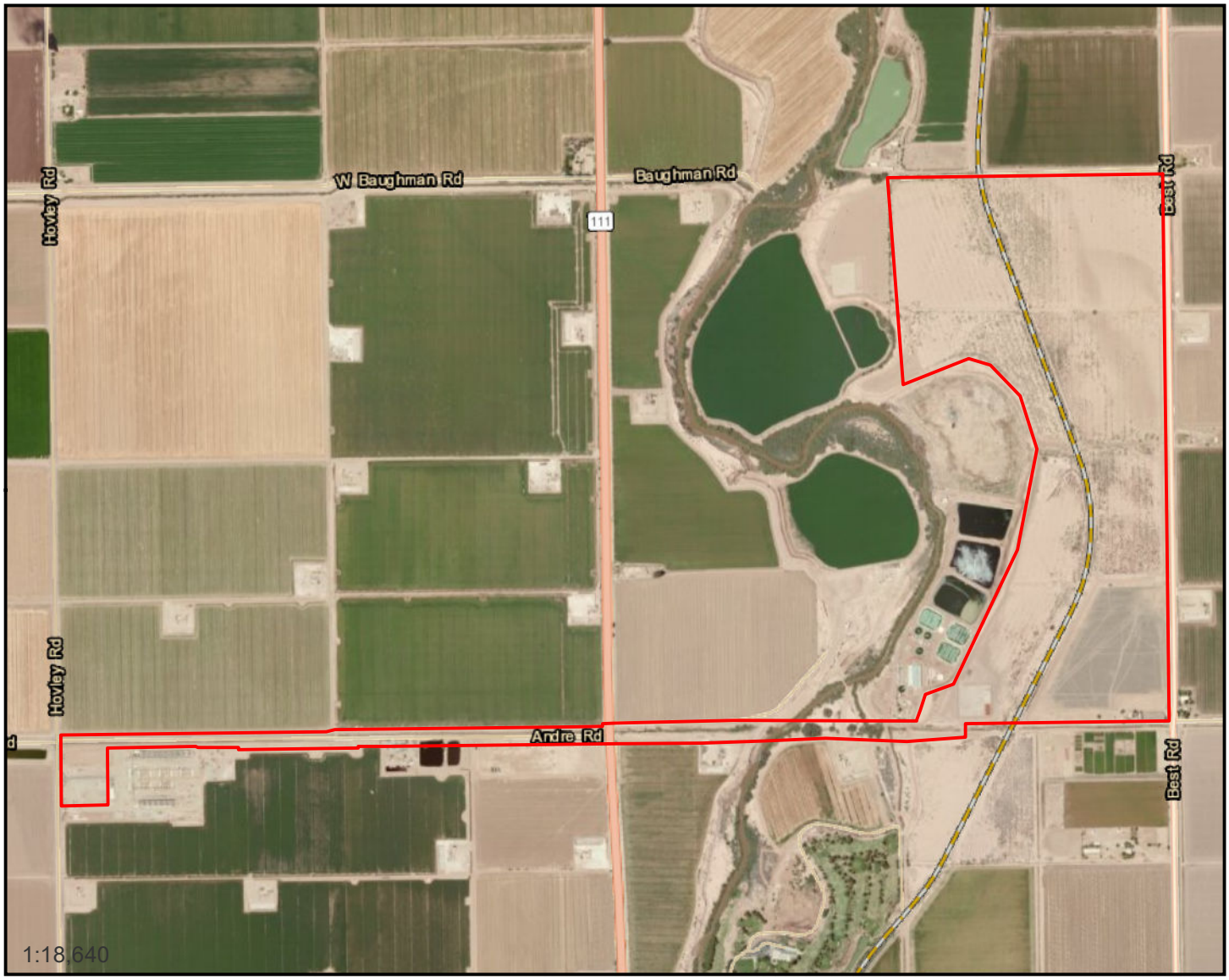
1.1 PROJECT BACKGROUND

ORNI is proposing to build, operate, and maintain the Brawley Solar Energy Facility, a 40 megawatt (MW)/160 megawatt-hour (MWh) photovoltaic (PV) solar farm and 40 MW/160 MWh battery energy storage system (BESS) on approximately 227 acres in Brawley, Imperial County. Power generated by 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. 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. The Project would connect to the North Brawley Geothermal Power Plant southwest of the Project site via an approximately 1.8-mile-long aboveground 92 kilovolt (kV) generation tie line (gen-tie line).

1.2 PROJECT LOCATION

The Project is located at 5003 Best Avenue, Brawley, California, on six privately owned parcels (Project site). The Project is located within the U.S. Geological Survey (USGS) *Westmorland East*, California, 7.5-minute topographic quadrangle. Currently the Project site contains fallow alfalfa fields. The Project site is bordered by undeveloped agricultural land to the north and east and a mixture of undeveloped agricultural land and dirt lots used for staging activities to the south, and the City of Brawley Wastewater Treatment Plant is located along the western edge of the Project site. The elevation at the Project site is approximately 145 feet below mean sea level (bmsl). Maps of the Project location and Project vicinity are provided in Figure 1.





Survey Area

N

0 500 1,000 2,000

Feet

Figure 1
Brawley Solar Project
Project Location & Vicinity

Name: 21267 BIO Fig 1 Project Location and Vicinity.Mxd
Print Date: 12/15/2020, Author: pcarlos

CHAMBERS GROUP

SECTION 2.0 – METHODOLOGY

2.1 LITERATURE REVIEW

Prior to performing the field survey, existing documentation relevant to the Project site was reviewed. The most recent records of the California Natural Diversity Database (CNDDB) managed by CDFW (CDFW 2020), the USFWS Critical Habitat Mapper (USFWS 2020), and the California Native Plant Society's Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California (CNPS 2020) were reviewed for the following quadrangles containing and surrounding the Project site: *Westmorland East, Niland*, *Obsidian Butte, Westmorland West, West, Iris, Alamorio, Brawley,* and *Brawley Northwest*, California, USGS 7.5-minute quadrangles. These databases contain records of reported occurrences of federally or state listed endangered or threatened species, California Species of Concern (SSC), or otherwise sensitive species or habitats that may occur within or in the immediate vicinity of the Project site.

2.2 SOILS

Before conducting the survey, soil maps for Imperial County were referenced online to determine the soil types found within the Project site. Soils were determined in accordance with categories set forth by the U.S. Department of Agriculture (USDA) Soil Conservation Service and by referencing the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2020).

2.3 JURISDICTIONAL WATERS

A general assessment of jurisdictional waters regulated by the United States Army Corps of Engineers (USACE), California Regional Water Quality Control Board (RWQCB), and CDFW was conducted for the Project site. Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States. The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife. The assessment was conducted by a desktop survey through the USGS National Hydrography Dataset for hydrological connectivity.

2.4 BIOLOGICAL RECONNAISSANCE-LEVEL SURVEY

Chambers Group biologists Brian Cropper and Genelle Ives conducted the general reconnaissance survey (survey) within the Project site to identify the potential for occurrence of sensitive species, vegetation communities, or habitats that could support sensitive wildlife species. The survey was conducted on foot throughout the Project site between 0830 and 1715 hours on October 22, 2020. Weather conditions during the survey included temperatures ranging from 65 to 73 degrees Fahrenheit, with 80 percent cloud cover and no precipitation. Photographs of the Project site were recorded to document existing conditions (Appendix A).

2.4.1 Vegetation

All plant species observed within the Project site were recorded. Vegetation communities within the Project site were identified, qualitatively described, and mapped onto a high-resolution imagery aerial photograph. Plant communities were determined in accordance with the *Manual of California Vegetation*, *Second Edition* (Sawyer et al. 2009). Plant nomenclature follows that of *The Jepson Manual* (Baldwin et al. 2012). A comprehensive list of the plant species observed during the survey is provided in Appendix B.

2.4.2 Wildlife

All wildlife and wildlife signs observed and detected, including tracks, scat, carcasses, burrows, excavations, and vocalizations, were recorded. Additional survey time was spent in those habitats most likely to be utilized by wildlife (native vegetation, wildlife trails, etc.) or in habitats with the potential to support state and/or federally listed or otherwise sensitive species. Notes were made on the general habitat types, species observed, and the conditions of the Project site. A comprehensive list of the wildlife species observed during the survey is provided in Appendix C.

SECTION 3.0 – RESULTS

3.1 NATURAL COMMUNITY CONSERVATION PLAN & HABITAT CONSERVATION PLAN

The Project site is located within the designated boundaries of the Desert Renewable Energy Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP). However, the Project is not located within or adjacent to an Area of Critical Environmental Concern.

3.2 SOILS

According to the results from the USDA NRCS Web Soil Survey (USDA 2020), the Project site is located in the Imperial Valley Area, CA683 part of the soil map. Six soil types are known to occur within and/or adjacent to the site and are described below.

Badland occurs along the western portion of the Project site. The parent material is composed of alluvium. This soil is not rated as hydric, and the runoff class is high.

Imperial Silty Clay complex occurs throughout the Project site. The parent material is clayey alluvium derived from mixed or clayey lacustrine deposits. The available water capacity is classified as moderate (approximately 8.3 inches) with a depth to the water table of more than 80 inches.

Imperial Glenbar Silty Clay Loam occurs along the western portion and eastern edge of the Project site. The parent material is clayey alluvium derived from mixed and/or clayey lacustrine deposits. The available water capacity is moderate (approximately 8.6 inches) with a depth to the water table of more than 80 inches.

Indio-Vent complex occurs in the southern portion of the Project site just east of the New River. The parent material is alluvium derived from mixed and/or eolian deposits. The available water capacity is moderate (approximately 8.5 inches) with a depth to the water table of more than 80 inches.

Meloland Very Fine Sandy Loam occurs along the drainages in the southern portion of the Project site. The parent material is alluvium derived from mixed and/or eolian deposits. The available water capacity is moderate (approximately 7.8 inches) and a low runoff class. The depth to the water table is more than 80 inches.

Vint and Indio Very Fine Sandy Loam occurs along the drainage in the southwest portion of the Project site. The parent material is alluvium derived from mixed sources and/or eolian deposits. The available water capacity is moderate at about 6.8 inches. The depth to the water table is more than 80 inches.

3.3 JURISDICTIONAL WATERS

The western portion of the Project site is located within the New River watershed (Hydrologic Unit Code [HUC-10] 1810020411) and within the Federal Emergency Management Agency (FEMA) 100-year flood zone (Figure 2). The New River watershed at the Project site is bordered to the south by Imperial Valley, to the west by the Vallecito Mountains, to the north by the Salton Sea, and to the east by the Chocolate Mountains. The New River is the major water source for the watershed, which drains into the Salton Sea. Along its watercourse, several tributaries, including mostly agricultural drains and canals discharge into the New River. The eastern portion of the Project site is located within the Alamo River watershed (HUC-

10 1810020408) and is within the FEMA 100-year flood zone (Figure 2). The Alamo River is the major water source for the watershed, which also drains into the Salton Sea. The primary tributaries to the Alamo River are agricultural drains and canals. Both rivers are known to be heavily polluted with agricultural and bacterial toxins.

Several jurisdictional and non-jurisdictional features were observed within the Project site. The New River, a National Wetlands Inventory (NWI) mapped blueline, flows through the middle portion of the Project site (Figure 2). In addition, several NWI mapped blueline canals, drains, and ditches owned by Imperial Irrigation District (IID) flow along the borders of the Project site (Figure 2). Locations of the features observed during the field survey are presented in Figure 3.

Feature 1, the IID "Spruce Three Drain," occurs along the proposed gen-tie line located in the southwest portion of the Project site along Andre Road. The Spruce Three drain is a mapped NWI stream (Riverine Intermittent Stream Bed, Seasonally Flooded, Excavated). The drainage is man-made and receives flow from surface runoff from Andre Road and surrounding agricultural fields. Bank-to-bank measurements ranged from 13 to 80 feet. Ordinary High Water Mark (OHWM) measurements ranged from 6 to 40 feet. The drain flows into the Project site from the west at Hovley Road along the south side of Andre Road, flows east for approximately 0.50 mile and crosses under Andre Road to the north side of the road, and appears to continue to flow eastward until it empties into the New River, which terminates at the Salton Sea. The feature is lined with riparian vegetation dominated by arrow weed (*Pluchea sericea*) a Facultative Wetland (FACW) species, meaning one that usually occurs in wetlands but is also found in non-wetlands (Lichvar et al. 2016).

Feature 2 occurs along the gen-tie line portion of the Project site, on the north side of Andre Road. Feature 2 is a man-made, unvegetated cement-lined ditch. Bank-to-bank measured 10 feet; the OHWM measured 4 feet. The feature flows into the Project site from the west for approximately 0.50 mile, where it appears to connect to the Spruce Three Drain. Feature 2 receives flow from road runoff and agricultural runoff from the surrounding agricultural fields.

Feature 3, the New River, flows through the eastern portion of the gen-tie line. The New River is an NWI mapped blueline wetland riverine system (Riverine Lower Perennial, Unconsolidated Bottom Wetland, Permanently Flooded). Bank-to bank-measurements ranged from 110 to 170 feet. OHWM measurements ranged from 42 to 107 feet. The river flows south to north from Mexico and terminates in the Salton Sea. Within the Project site, the vegetation along the banks of the river consists completely of tamarisk (*Tamarix* spp.) a Facultative (FAC) species, one that is equally likely to occur in wetlands or non-wetlands (Lichvar et al. 2016).

Feature 4, the IID "Livesly Drain," occurs east of the New River in the eastern portion of the gen-tie line. The Livesly Drain is a NWI mapped blueline stream. This feature is man-made and receives flow from agricultural runoff. The Livesly Drain flows into the Project site from the east, turns north, and exits into the New River. Bank-to-bank measurements ranged from 20 to 120 feet. The OHWM measurements ranged from 13 to 20 feet. The portion of the drainage within the Project site is composed completely of tamarisk.

Feature 5, the IID "Oakley Canal," occurs just south of the Livesly Drain. The Oakley Canal is a NWI mapped blueline stream (Riverine Intermittent Stream Bed, Seasonally Flooded, Excavated). Feature 5 is man-made and receives flow from agricultural runoff. The Oakley Canal flows south to north and empties into

the Livesly Canal. Bank-to-bank measurements ranged from 25 feet to 48 feet. OHWM measured 15 feet. The vegetation along the banks of Feature 5 consists primarily of tamarisk.

Feature 6, the IID "Best Canal," occurs along the eastern border of the Project site on the west side of Best Avenue. The canal is a NWI mapped blueline stream (Riverine Intermittent Stream Bed, Seasonally Flooded, Excavated) that receives flow from agricultural and road run-off. Bank-to-bank the canal measured 15 feet; OHWM measured 5 feet. The canal is unvegetated throughout the Project site and flows south to north, exits the Project site, turns west and eventually empties into the New River.

Feature 7 occurs in the southeast portion of the Project site on the south side of Andre Road along the gen-tie line. Feature 7 consists of two man-made detention ponds with riparian vegetation and are mapped NWI wetlands (Palustrine Unconsolidated Bottom Wetland, Permanently Flooded, Excavated). The vegetation within Feature 7 is dominated by tamarisk and cattail (*Typha* spp.), an Obligate (OBL) species, one that almost always occurs naturally in wetlands (Lichvar et al. 2016). In addition, arrow weed and big saltbush (*Atriplex lentiformis*), also known as quail bush, a FAC species, were observed.

Several man-made unvegetated ditches were observed throughout the Project site. When a field is irrigated, water is allowed to flow through smaller man-made earthen or concrete-lined ditches (typically referred to as a "head ditch"), which distributes the water evenly across the field. At the opposite, lower elevation side of the field, excess water is collected into another ditch (typically referred to as a "tail ditch"). The ditches present on the Project site are both earthen and concrete-lined and are frequently rebuilt when the fields are plowed and disked. These ditches occur primarily along the edges of the agricultural fields and across portions of the fields. None of these ditches connect directly to a major feature, and most terminate at small, man-made detention areas. Therefore, these features are not considered jurisdictional under CDFW, RWQCB, or USACE.

The Imperial County Fire Department (ICFD) Fire Prevention Bureau requires two points of emergency access for the Project along the west side of the railroad tracks. The access routes will be approximately 20 feet wide to allow large vehicles, including fire trucks and heavy equipment, access to the site. One access routes may be extended from the main access road located off Best Avenue utilizing an existing access road that crosses over a concrete lined channel and a second access route is proposed to be constructed in the northwest portion of the Project site crossing over a non-jurisdictional irrigation ditch. Vegetation within this feature comprised of quail bush, and non-native Mexican palo verde (*Parkinsonia aculeata*) and tamarisk.

3.4 VEGETATION COMMUNITIES

Nine vegetation communities, Quail Bush Scrub, Agricultural, Bare Ground, Developed, Disturbed, Bush Seepweed Scrub, Arrow Weed Thickets, Ornamental and Tamarisk Thickets were observed within the Project site. A map showing the vegetation communities observed within the Project site is provided in Figure 4, and the communities are described in the following subsections.

3.4.1 Quail Bush Scrub

Quail bush scrub is dominated by quail bush with scattered bush seepweed (*Sueda nigra*) present in areas where the habitat gently slopes into more alkaline soils. The shrub layer is thick and continuous with a nonexistent herbaceous layer. Stands occur in areas where less alkaline or saline soils are present, favoring clay soils and more consistent topography where water does not accumulate easily (Sawyer et al. 2009).

Plant species observed within the Project site included bush seepweed, big saltbush, and spiny chlorocantha (*Chloracantha spinosa*). Approximately 4.86 acres of Quail Bush Scrub occurs within the Project site survey area.

3.4.2 Agricultural

Large swaths of the Project site consist of plots of agricultural fields that are no longer in use. Bermuda grass (*Cynodon dactylon*) is found in these areas with alfalfa (*Medicago sativa*) seedlings in lower numbers. Agricultural fields are similar to Bare Ground habitat where areas have higher water permeability and higher fossorial rodent habitat potential. Mexican palo verde are planted along the outside of several agriculture fields as wind breaks for agricultural purposes, these areas are therefore considered agricultural habitat. Trees are mature, averaging 15 meters in height and are continuously planted alongside the agricultural fields. Isolated honey mesquite (*Prosopis glandulosa*) shrubs were observed along the northwestern portion of the Project site along the tree line. Other plant species observed within the Project site included alfalfa (*Medicago sativa*), Mexican palo verde, big saltbush, and tamarisk. Approximately 91.96 acres of Agricultural fields occur within the Project site survey area.

3.4.3 Bare Ground

Bare Ground areas are generally devoid of vegetation but do not contain any form of pavement. Bare Ground has higher water permeability and higher fossorial rodent habitat potential. Bare Ground is present throughout the entire Project site, with small patches between agricultural land and long swaths that include dirt access roads that receive very little use. Isolated alfalfa was the only vegetation observed in these areas. Approximately 148.07 acres of Bare Ground occurs within the Project site survey area.

3.4.4 Developed

Developed areas are areas that have been altered by humans and now display man-made structures such as urban areas, houses, paved roads, buildings, parks, and other maintained areas (Gray and Bramlet 1992). Approximately 4.40 acres of Developed area occurs within the Project site survey area.

3.4.5 Disturbed

Disturbed areas generally have altered topography and soils due to man-made reasons, usually pertaining to development or agricultural purposes. Any shrubs in the shrub canopy are isolated, and the herbaceous layer is sparse to intermittent with pockets of advantageous non-native species that spread from a singular location. Species observed included Bermuda grass (*Cynodon dactylon*), Mediterranean schismus (*Schismus barbatus*), and lamb's quarters (*Chenopodium album*). Approximately 6.38 acres of Disturbed areas occur within the Project site survey area.

3.4.6 Bush Seepweed Scrub

Bush seepweed is dominant in the shrub canopy with scattered quail bush present. The shrub layer is intermittent to continuous with an herbaceous layer that is very sparse. Stands occur in gently sloping plains bordering agricultural fields or irrigation ditches and areas with disturbed hydrology due to man-made alteration. Soils are deep and saline or alkaline (Sawyer et al. 2009). Species observed within the Project site included bush seepweed and big saltbush. Approximately 3.52 acres of Bush Seepweed Scrub occurs within the Project site survey area.

3.4.7 Arrow Weed Thickets

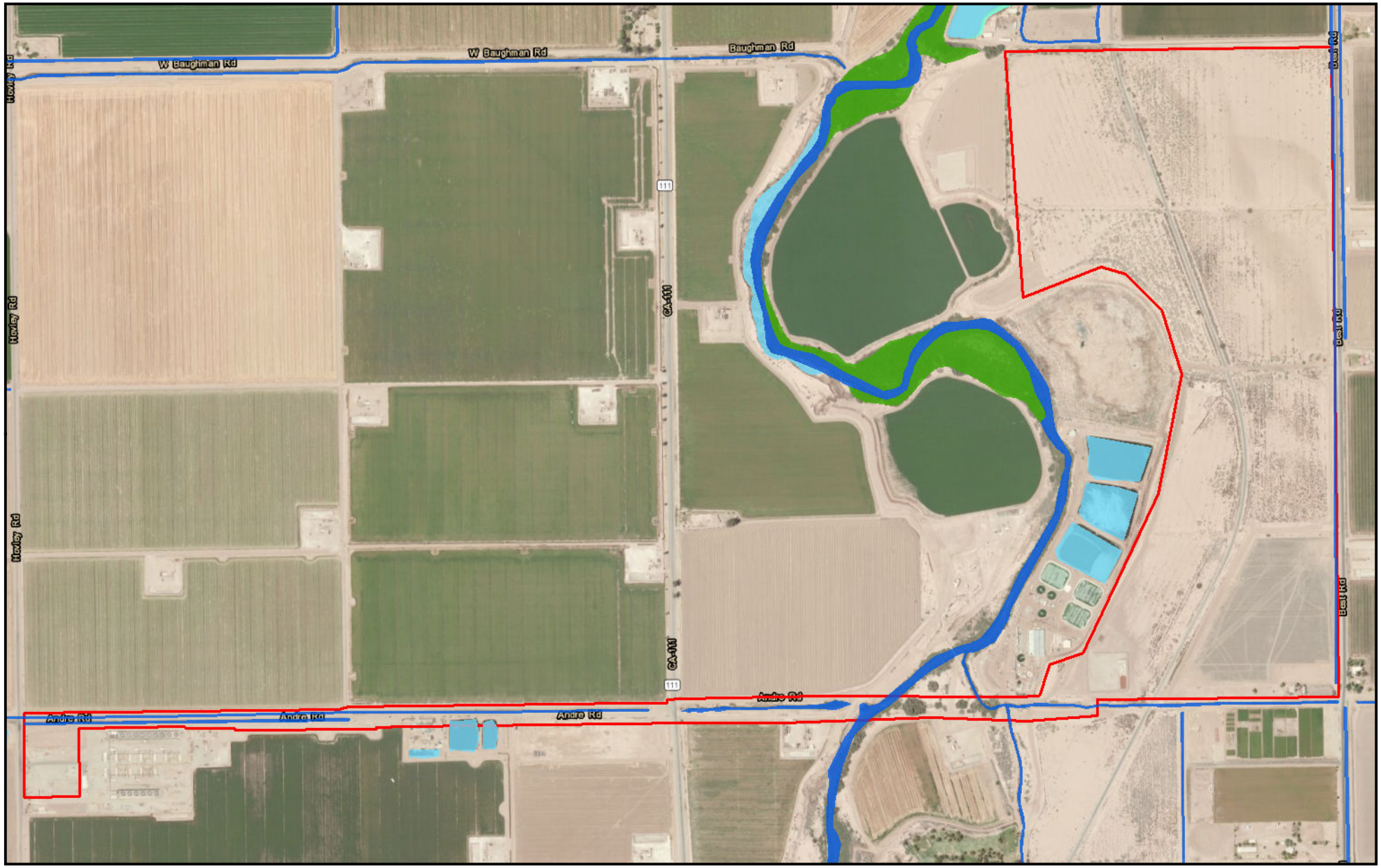
The shrub canopy is intermittent to continuous with shrubs reaching 2 to 3 meters in height. Vegetation is dominated by arrow weed and extends along the water feature, occasionally extending over the bank and into the access road. The herbaceous layer is open and intermittent, existing in between stands of cattail and arrow weed. The habitat exists in irrigation ditches consisting of soils that are sandy and loamy where water is permeable. Plant species observed included arrow weed, tamarisk, cattail, big saltbush, saltgrass (*Distichlis spicata*), and salt heliotrope (*Heliotropium curassavicum*). Approximately 6.23 acres of Arrow Weed Thickets occur within the Project site survey area.

3.4.8 Ornamental

Ornamental Landscaping includes areas where the vegetation is dominated by non-native horticultural plants (Gray and Bramlet 1992). Typically, the species composition consists of introduced trees, shrubs, flowers, and turf grass. Approximately 1.87 acres of Ornamental Landscaping occurs within the Project site survey area.

3.4.9 Tamarisk Thickets

Tamarisk dominates the tree canopy and is thick and continuous. This non-native shrub layer is sparse with isolated quail bush present, while the herbaceous layer contains very little vegetation. Trees average 15 meters in height and exist in irrigation ditches or on the upper banks along water features. Species observed within the Project site included tamarisk and big saltbush. Approximately 5.16 acres of Tamarisk Thickets occur within the Project site survey area.



Survey Area

NWI

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

N

0 500 1,000 2,000

Feet

Figure 2

Brawley Solar

NWI Mapped Waters

Name: 21267 BIO Fig 2 NWI Mapped Waters.Mxd
Print Date: 12/15/2020, Author: pcarlos

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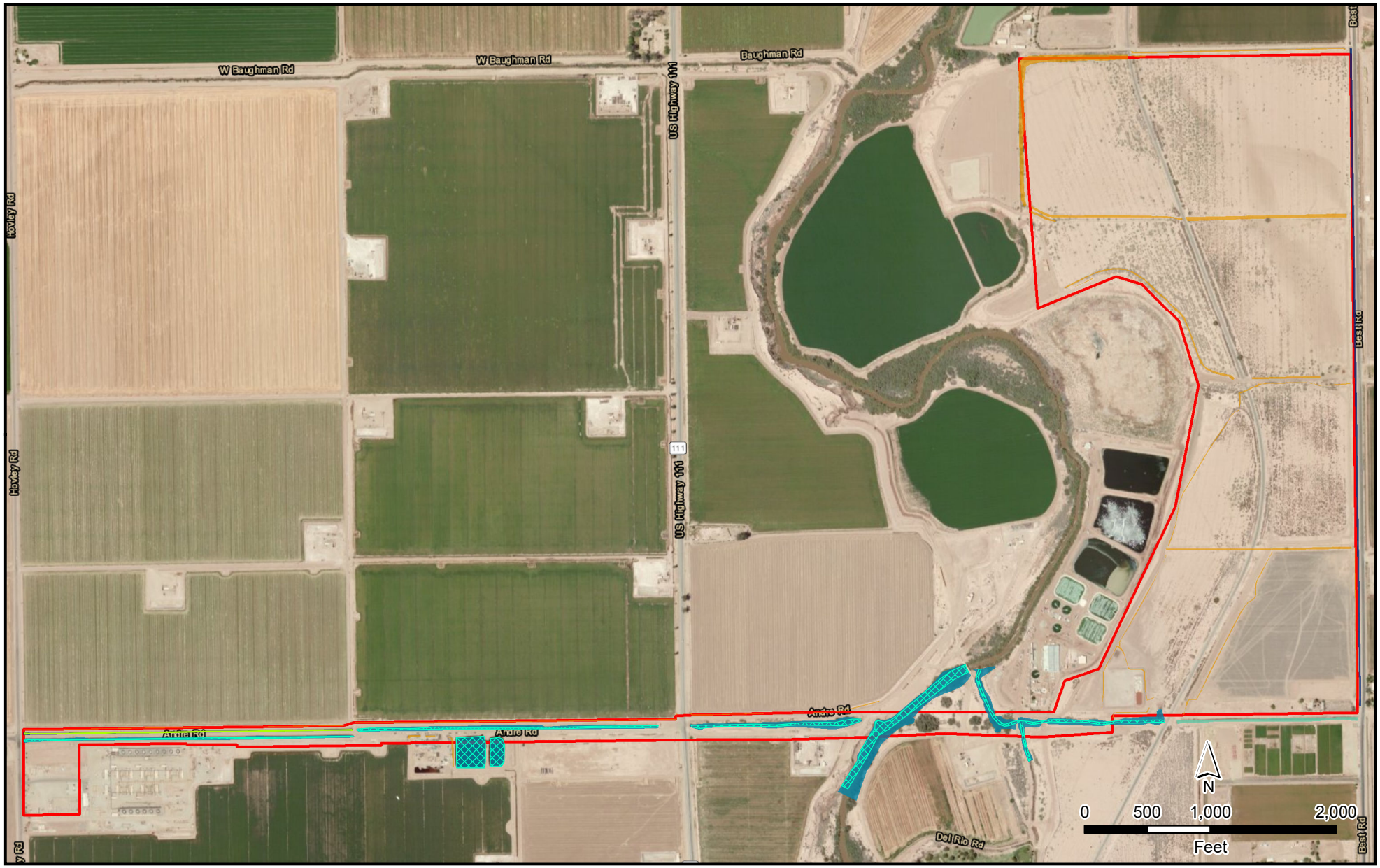

Survey Area

CDFW Jurisdictional Features

- Wetland
- Non-Vegetated Drainage
- Upland Vegetated Channel

USACE/RWQCB Jurisdictional Features

- Wetland
- Non-Vegetated Drainage

Non Jurisdictional Features

- Non-Jurisdictional Ditch

Figure 3

Brawley Solar
Jurisdictional Waters

Name: 21267 BIO Fig 3 Jurisdictional Waters.Mxd
Print Date: 8/9/2021, Author: pcarlos

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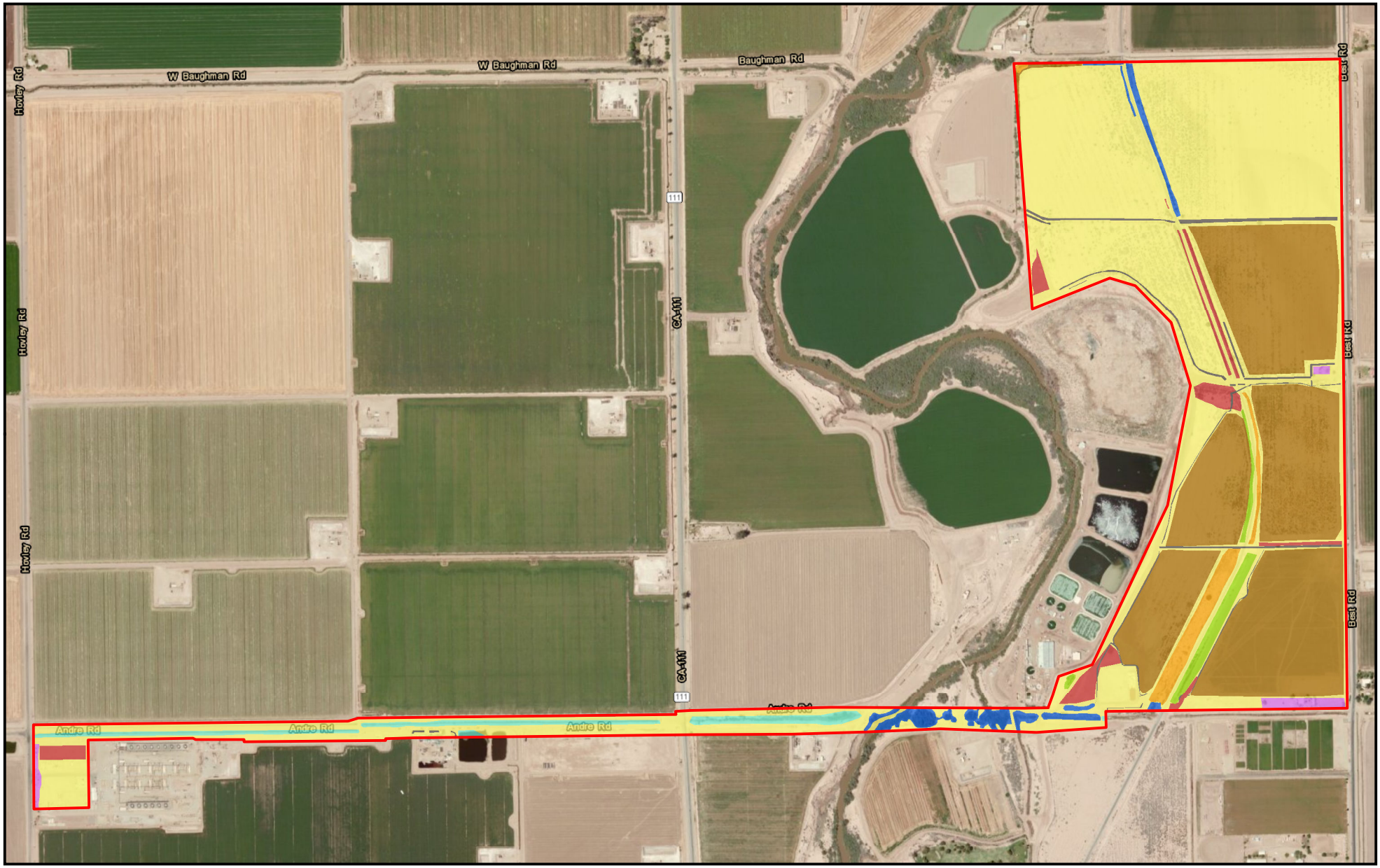

Survey Area

Vegetation Communities

- Agricultural
- Arrow Weed Thicket
- Bareground
- Bush Seepweed Scrub
- Developed
- Disturbed
- Ornamental
- Quail Bush Scrub
- Tamarisk Thickets

N

0 500 1,000 2,000

Feet

Figure 4

Brawley Solar

Vegetation Communities

Name: 21267 BIO Fig 4 Vegetation Communities.Mxd
Print Date: 12/29/2020, Author: pcarlos

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3.5 SENSITIVE SPECIES

The following information is a list of abbreviations used to help determine the significance of biological sensitive resources potentially occurring on the Project site.

Rare Plant Rank (RPR)

List 1A	=	Plants presumed extinct in California
List 1B	=	Plants rare and endangered in California and throughout their range
List 2	=	Plants rare, threatened, or endangered in California but more common elsewhere in their range
List 3	=	Plants about which we need more information; a review list
List 4	=	Plants of limited distribution; a watch list

RPR Extensions

0.1	=	Seriously endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat)
0.2	=	Fairly endangered in California (20-80 percent occurrences threatened)
0.3	=	Not very endangered in California (less than 20 percent of occurrences threatened)

Federal

FE	=	Federally listed; Endangered
FT	=	Federally listed; Threatened

State

ST	=	State listed; Threatened
SE	=	State listed; Endangered
RARE	=	State-listed; Rare (Listed “Rare” animals have been redesignated as Threatened, but Rare plants have retained the Rare designation.)
SSC	=	State Species of Special Concern

The following information was used to determine the significance of biological resources potentially occurring within the Project site. The criteria used to evaluate the potential for sensitive species to occur on the Project site are outlined in Table 1.

Table 1: Criteria for Evaluating Sensitive Species Potential for Occurrence (PFO)

PFO	CRITERIA
Absent:	Species is restricted to habitats or environmental conditions that do not occur within the Project site. Additionally, if the survey was conducted within the blooming period of the species and appropriate habitat was observed in the surrounding area but the species was not observed within the Project impact area, it was considered absent.
Low:	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the Project site, and/or habitats or environmental conditions needed to support the species are of poor quality.
Moderate:	Either a historical record exists of the species within the immediate vicinity of the Project site (approximately 3 miles) and marginal habitat exists on the Project site, or the habitat requirements or environmental conditions associated with the species occur within the Project site, but no historical records exist within 5 miles of the Project site.
High:	Both a historical record exists of the species within the Project site or its immediate vicinity (approximately 1 mile), and the habitat requirements and environmental conditions associated with the species occur within the Project site.
Present:	Species was detected within the Project site at the time of the survey.

* PFO: Potential for Occurrence

3.5.1 Sensitive Plants

Factors used to determine the potential for occurrence included the quality of habitat, elevation, and the results of the reconnaissance survey. In addition, the location of prior CNDDB records of occurrence were used as additional data; but since the CNDDB is a positive-sighting database, this data was used only in support of the analysis from the previously identified factors.

Current database searches (CDFW 2020; CNPSEI 2020) resulted in a list of five federally and/or state listed threatened and endangered or rare sensitive plant species that may potentially occur within the Project site (Figure 5). After the literature review and the reconnaissance-level survey, it was determined that one species had a Moderate potential to occur; and four of these species are considered Absent from the Project site due to lack of suitable habitat.

The following four plant species are considered **Absent** from the Project site due to lack of suitable habitat:

- gravel milk-vetch (*Astragalus sabulonum*) -2B.2
- Munz's cholla (*Cylindropuntia munzii*) – 1B.3
- glandular ditaxis (*Ditaxis claryana*) – 2B.2
- Thurber's pilostyles (*Pilostyles thurberi*) – 4.3

The following species is considered **Low Potential** to be observed in the Project site due to lack of suitable habitat:

- Abram's spurge (*Euphorbia abramsiana*) – 2B.2

Abram's spurge is an annual herb in the spurge family that mostly exists in Sonoran or Mojave Desert habitats, favoring sandy flats where water is permeable (Sawyer et al. 2009). Although the habitats

available at the Project site are not typically where this plant would grow, it has the low potential to occur in fields, irrigation ditches, and other disturbed areas that all exist within the Project site. In addition, this species was positively identified less than 2 miles from the Project site. This identification, however, was made before 1940 and the population is presumed to be extirpated due to agricultural and residential development.

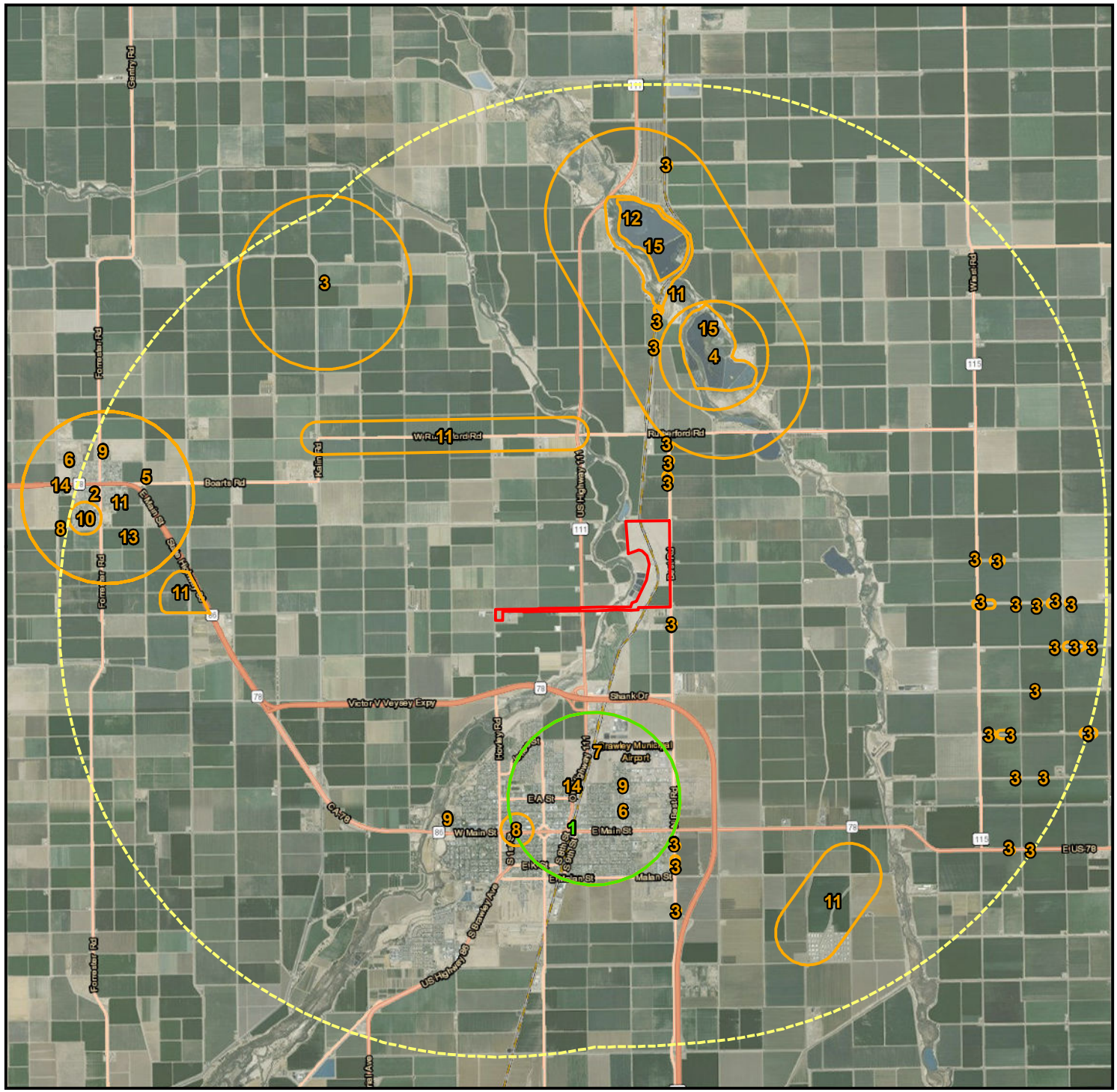

Figure 5
Brawley Solar
CNDDB Occurrences

Survey Area
5 Mile Buffer

CNDDB Occurrences

Plants
1. Abrams' spurge

Animals
2. black-tailed gnatcatcher
3. burrowing owl
4. California black rail
5. California mellitid bee
6. Crissal thrasher
7. Crotch bumble bee
8. flat-tailed horned lizard
9. Gila woodpecker
10. gray-headed junco
11. mountain plover
12. razorback sucker
13. short-eared owl
14. western yellow bat
15. Yuma Ridgway's rail

N

0 0.75 1.5 3
Miles

Name: 21267 BIO Fig 5 CNDDB Occurrences.Mxd
Print Date: 12/15/2020, Author: pcarlos

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3.5.2 Sensitive Wildlife

A current database search (CDFW 2020) resulted in a list of 23 federally and/or state listed endangered or threatened, Species of Concern, or otherwise sensitive wildlife species that may potentially occur within the Project site (Figure 5). After a literature review and the assessment of the various habitat types within the Project site, it was determined that 17 sensitive wildlife species were considered absent from the Project site, three species have a low potential to occur, two species have a high potential to occur, and one species was present within the Project site. Factors used to determine potential for occurrence included the quality of habitat and the location of prior CNDDB records of occurrence.

The following 17 wildlife species are considered **absent** from the Project site due to lack of suitable habitat present on the Project site:

- American badger (*Taxidea taxus*)- SSC
- black skimmer (*Rynchops niger*) – SSC
- California black rail (*Laterallus jamaicensis coturniculus*) – **ST**
- Colorado Desert fringe-toed lizard (*Uma notata*) – SSC
- crissal thrasher (*Toxostoma crissale*) – SSC
- desert pupfish (*Cyprinodon macularius*) – **FE, SE**
- Gila woodpecker (*Melanerpes uropygialis*) – **SE**
- gull-billed tern (*Gelochelidon nilotica*) – SSC
- Le Conte's thrasher (*Toxostoma lecontei*) – SSC
- lowland leopard frog (*Lithobates yavapaiensis*) – SSC
- Palm Springs pocket mouse (*Perognathus longimembris bangsi*) – SSC
- razorback sucker (*Xyrauchen texanus*) – **FE, SE**
- Sonoran Desert toad (*Incilius alvarius*) – SSC
- western snowy plover (*Charadrius alexandrinus nivosus*) – **FE**, SSC
- yellow warbler (*Setophaga petechia*) – SSC
- Yuma hispid cotton rat (*Sigmodon hispidus eremicus*) – SSC
- Yuma Ridgway's rail (*Rallus obsoletus yumanensis*) – **FE, ST**

The analysis of the CNDDB search and field survey resulted in three species with a **low** potential to occur on the Project site due to low quality habitat and are described below:

- flat-tailed horned lizard (*Phrynosoma mcallii*) – SSC
- short-eared owl (*Asio flammeus*) – SSC
- western yellow bat (*Lasiurus xanthinus*) – SSC

The analysis of the CNDDB search and field survey resulted in two species with a **high** potential to occur on the Project site. Burrowing owl (*Athene cunicularia*) and Mountain plover (*Charadrius montanus*) have a high potential to occur and are described below:

Burrowing owl- SSC

The burrowing owl (BUOW) is a California Species of Special Concern. The burrowing owl breeds in open plains from western Canada and the western United States, Mexico through Central America, and into South America to Argentina (Klute et al. 2003). This species inhabits dry, open, native or non-native grasslands, deserts, and other arid environments with low-growing and low-

density vegetation (Ehrlich et al. 1988). It may occupy golf courses, cemeteries, road rights-of way, airstrips, abandoned buildings, irrigation ditches, and vacant lots with holes or cracks suitable for use as burrows (TLMA 2006). Burrowing owls typically use burrows made by mammals such as California ground squirrels (*Otospermophilus beecheyi*), foxes, or badgers (Trulio 1997). When burrows are scarce, the burrowing owl may use man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes (TLMA 2006). High quality habitat exists within the Project site. In addition, burrowing owl have recently been recorded within 0.14 mile of the Project site. Therefore, this species has a high potential to occur within the Project site.

Mountain plover – SSC

The mountain plover (wintering) is a California Species of Special Concern and a federally Proposed Threatened Species. This species breeds from the prairie and sagebrush country of north-central Montana, eastern Wyoming, and the area around southeastern Colorado. It winters from central California along the southern border southward to northern Mexico (Udvardy 1977). Common wintering habitats consist of dry, barren ground, smooth dirt fields, agricultural fields, and shortgrass prairies. This species tends to form small flocks in the winter. It is one of the few shorebird species that prefers habitats away from water. The Project site contains suitable habitat of moderate to high quality. In addition, mountain plover have been recorded to occur within 1 mile of the Project site. Therefore, this species has a high potential to occur with the site.

One species, the loggerhead shrike (*Lanius ludovicianus*), was **present** within and directly adjacent to the Project site during the survey. In addition, this species has been recorded to nest within and surrounding the Project site.

Loggerhead shrike – SSC

The loggerhead shrike (nesting) is a California Species of Special Concern. Habitats may include oak savannas, open chaparral, desert washes, juniper woodlands, Joshua tree woodlands, and other semi-open areas. It can occupy a variety of semi-open habitats with scattered trees, large shrubs, utility poles, and other structures that serve as lookout posts while searching for potential prey. Loggerhead shrikes prefer dense, thorny shrubs and trees, brush piles, and tumbleweeds for nesting (Seattle Audubon Society 2008). During the survey, one individual was observed just outside the northwest boundary of the Project site, and an additional individual was observed within the southwest portion of the Project site (Figure 6). In addition, suitable nesting and foraging habitat is present within and directly adjacent to the Project site.

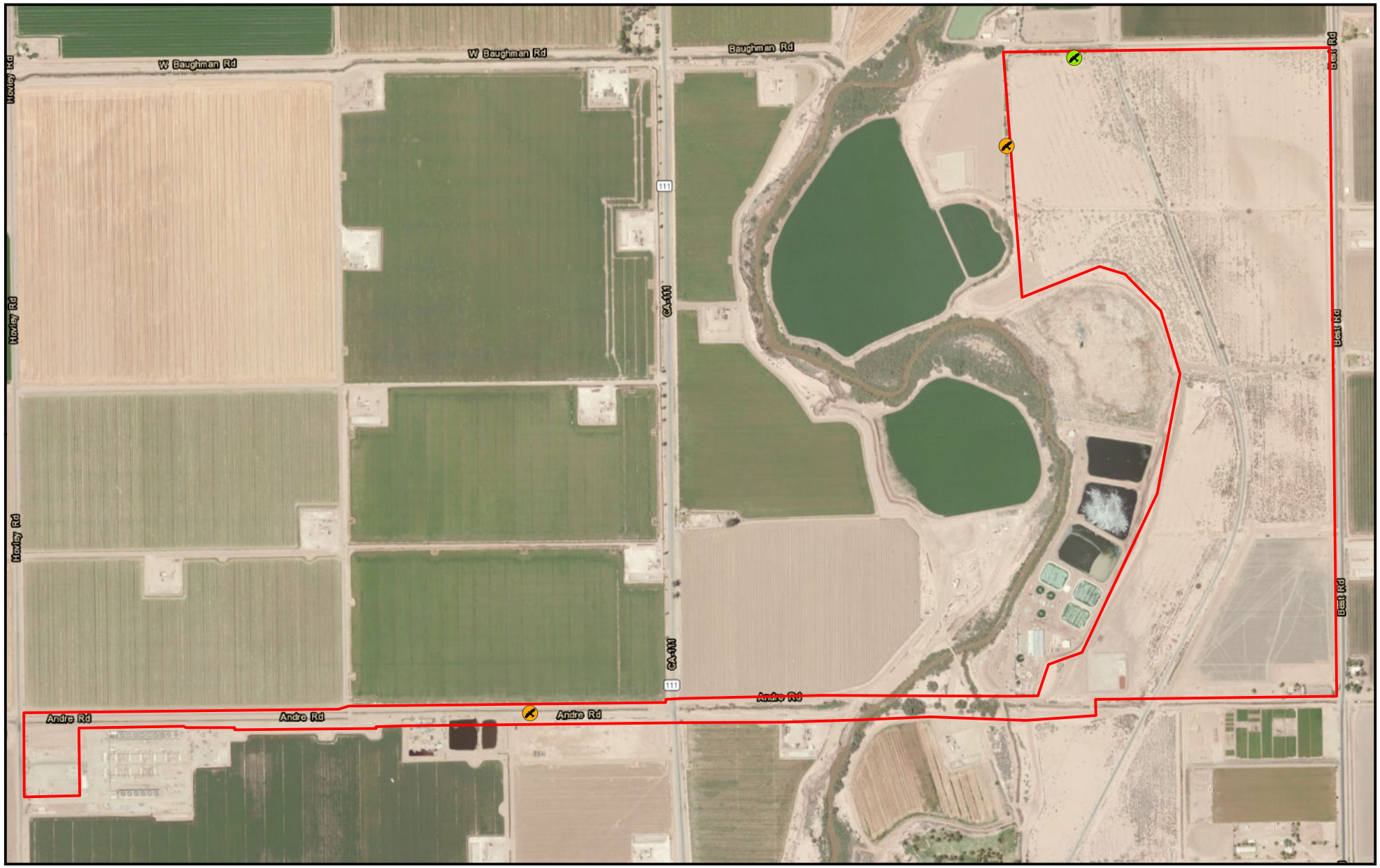
3.6 GENERAL PLANTS

No sensitive plant species were observed during the survey effort. A complete list of plants observed is provided in Appendix B.

3.7 GENERAL WILDLIFE

A total of 39 wildlife species were observed during the survey. Wildlife species observed or detected during the survey were characteristic of the existing Project site conditions. One California Species of Special Concern, loggerhead shrike, and two California watch list species, black-tailed gnatcatcher

(*Polioptila melanura*) and ferruginous hawk (*Buteo regalis*) were observed within the Project site. A complete list of wildlife observed is provided in Appendix C.



Survey Area

Species Observations

- Loggerhead Shrike
- Northern Harrier

N

0 500 1,000 2,000

Feet

Figure 6

Brawley Solar

Sensitive Species Observations

Name: 21267 BIO Fig 6 Sensitive Species Observations.Mxd
Print Date: 12/15/2020, Author: pcarlos

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SECTION 4.0 – CONCLUSIONS AND RECOMMENDATIONS

4.1 SENSITIVE PLANTS

After the literature review, the assessment of the various habitat types in the Project site, and the reconnaissance survey were conducted, it was determined that 4 sensitive plant species are considered absent from the Project site and 1 special status plant has a low potential to be present.

Abram's spurge has a low potential to occur. However, low quality habitat for this species occurs within the Project site and it has not been recorded within 3 miles of the site in the last 25 years. Therefore, no impacts to these species are anticipated to occur due to Project related activities.

4.2 SENSITIVE WILDLIFE

Of the 23 sensitive wildlife species identified in the literature review, it was determined that 17 sensitive wildlife species were considered absent from the Project site. Three species have a low potential to occur, two species have a high potential to occur, and one species was present within the Project site.

Flat-tailed horned lizard, short-eared owl, and western yellow bat have a low potential to occur. However, low quality habitat for these species occurs within the Project site; and none of these species have been recorded within the site within the last 25 years. Therefore, no impacts to these species are anticipated to occur as a result of Project activities.

Burrowing owl and mountain plover are considered to have a high potential to occur within the Project site. Two loggerhead shrikes were observed within the Project site. In order to minimize potential impacts to these species, a pre-construction survey should be conducted no more then 30 days prior to the start of construction activities. If any of these species are observed during the pre-construction survey, CDFW should be notified immediately; and an appropriate avoidance buffer should be established and measures to avoid or minimize impacts to the species should be submitted to CDFW for approval prior to construction. In addition, a biological monitor is recommended to be present during all construction activities occurring within 150 feet of wintering mountain plover or nesting loggerhead shrike and 500 feet of nesting burrowing owl.

4.3 JURISDICTIONAL WATERS

Several jurisdictional features were observed within the Project site. However, the project has been designed to avoid impacts to waters of the State and waters of the U.S.

The ICFD Fire Prevention Bureau requires two points of emergency access for the Project, including two separate ingress/egress routes to access the west side of the railroad tracks running north/south through the center of the Project. Three access points will be available to access the Project site including: primary access located in the middle of Best Avenue, a secondary construction access located in the southeast corner, and an emergency access located in the northwest corner. The emergency access route from the northwest portion of the Project site will be designed to cross a non-jurisdictional agricultural ditch. Potential access route options include converting a non-vegetated portion of an open cement culvert to a corrugated metal pipe (CMP) or a closed concrete pipe of similar size and establishing an access road above the pipe. Native quail bush and non-native tamarisk and Mexican palo verde are located within the

irrigation ditch. It is recommended the access routes be constructed in an area that will avoid or minimize impacts to native vegetation found within the irrigation ditch.

No impacts to waters of the State and/or waters of the US are anticipated. However, if impacts to waters of the State and/or waters of the US are unavoidable as the Project designs are finalized, a USACE 404 permit, State 401 certification, and/or State Lake and Streambed Alteration Agreement may be required for Project authorization. If permits are required for Project authorization, mitigation for impacts will be determined through coordination with the agencies during the permit application process. Prior to construction, installation of Best Management Practices should be installed for water quality and erosion control measures to minimize/avoid potential impacts. A biological monitor should be present prior to initiation of ground disturbing activities to demark limit of disturbance boundaries. Flagging and/or staking should be used to clearly define the work area boundaries and avoid impacts to adjacent native communities.

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APPENDIX A – SITE PHOTOGRAPHS

APPENDIX A – SITE PHOTOGRAPHS

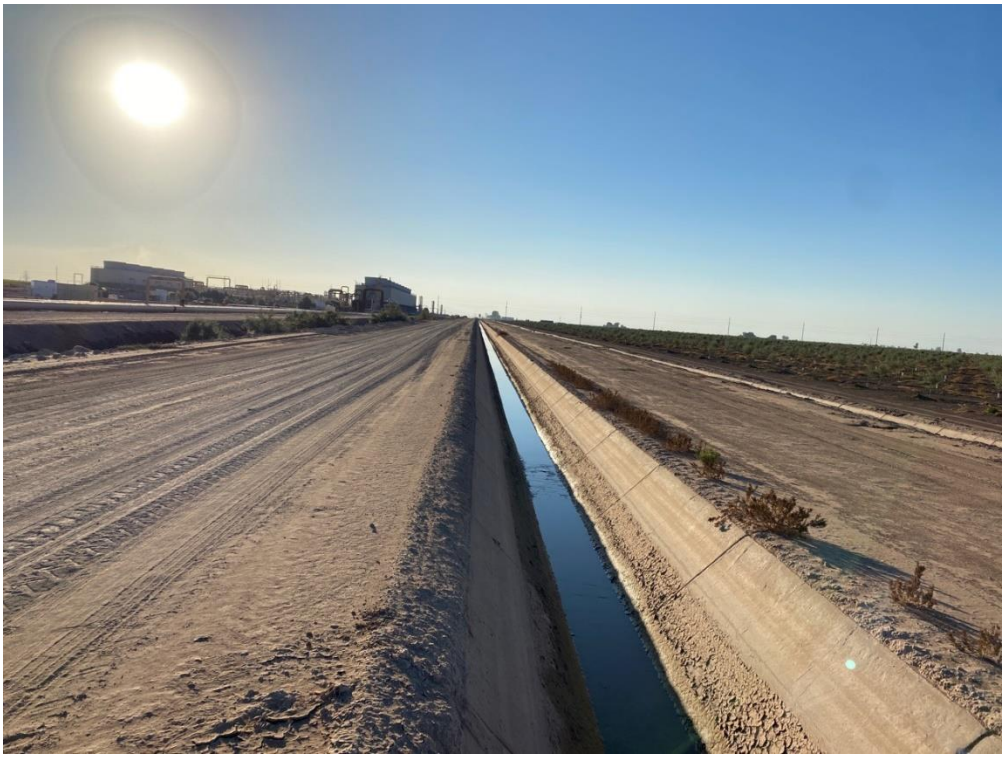

Photo 1.

Photo of the western end of the Spruce Three Drain, non-vegetated, jurisdictional feature which runs parallel with the forested wetland jurisdictional feature just south of it. Photo is facing west.

Photo 2.

Photo of the eastern end of the Spruce Three Drain, forested shrub wetland, jurisdictional feature. The vegetation community consists of Riparian scrub. Photo facing east.

Photo 3.

Overview of the New River that cuts diagonally through the Project site. The vegetation community is undisturbed Mediterranean Tamarisk. Photo is facing southeast.

Photo 4.

Overview of a man-made ditch leading into a culvert just north of the Livesley Drain. The area above the drainage is a disturbed vegetation community of Cattle Spinach. Photo is facing northwest.

	Photo 5. Overview of the Ornamental Landscaping just north of the Livesley Drain. The vegetation community is agricultural Bermuda grass. There is a man-made ditch surrounding it. Photo is facing north.
	Photo 6. Overview of the undisturbed scrub/chaparral vegetation community on the south side of the Project site. This area also contains a man-made culvert. Photo is facing northeast.

Photo 7.

Overview of the southeast corner of the Project site. There is a strip of barren land and above that is the agricultural Bermuda grass. South of the barren land is the Livesley Drain. Photo is facing northeast.

Photo 8.

Photo of a house as well as the vegetation community of Paloverde and Honey Mesquite in the southeast corner of the Project site. Photo is facing west.

Photo 9.

Photo showing the man-made ditch, in the middle of the Project site, that leads to a culvert. South of the ditch is agricultural Bermuda grass and to the north of the ditch is agricultural Alfalfa. Photo is facing west.

Photo 10.

Photo of the culvert, in the middle of the Project site, that the man-made ditch leads into. Photo is facing east.

Photo 11.

Overview of the northeast side of the Project site. To the east is bare ground, and to the west is a strip of mainly Mediterranean Tamarisk. A man-made ditch runs through it. Photo is facing north.

Photo 12.

Photo of a culvert that is in the center of the north side of the Project site. It is surrounded by mainly bare ground with man-made ditches running through. Photo is facing north.

Photo 13.

Photo showing the southwest corner of the north side of the Project site. There is a culvert and disturbed bare ground. Photo is facing southeast.

Photo 14.

Overview of the bare ground on the northwest side of the Project site. Photo is facing east.

Photo 15.

Overview of the wetland area in the northwest corner of the Project site. Photo is facing north.

APPENDIX B – PLANT SPECIES LIST

APPENDIX B – PLANT SPECIES OBSERVED

Scientific Name	Common Name
ANGIOSPERMS (EUDICOTS)	
AMARANTHACEAE	**AMARANTH FAMILY**
Amaranthus sp.	pigweed
Amaranthus biltoides	prostrate pigweed
Suaeda nigra	bush seepweed
ASTERACEAE	**SUNFLOWER FAMILY**
Chloracantha spinosa	spiny chlorocantha
Pluchea sericea	arrow weed
BORAGINACEAE	**BORAGE FAMILY**
Heliotropium curassavicum	salt heliotrope
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica tournefortii**	Sahara mustard
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
Atriplex lentiformis	quail bush
*Chenopodium album**	lamb's quarters
FABACEAE	**LEGUME FAMILY**
Medicago sativa	alfalfa
Parkinsonia aculeata	Mexican palo verde
Prosopis glandulosa	honey mesquite
TAMARICACEAE	**TAMARISK FAMILY**
*Tamarix ramosissima**	Mediterranean tamarisk
ZYGOPHYLLACEAE	**CALTROP FAMILY**
Larrea tridentata	creosote bush
ANGIOSPERMS (MONOCOTS)	
POACEAE	**GRASS FAMILY**
Cynodon dactylon	Bermuda grass
Distichlis spicata	saltgrass
*Schismus barbatus**	Mediterranean schismus
TYPHACEAE	**CATTAIL FAMILY**
Typha sp.	cattail

*Non-Native Species

APPENDIX C – WILDLIFE SPECIES LIST

APPENDIX C – WILDLIFE SPECIES LIST

Scientific Name	Common Name
CLASS REPTILIA	**REPTILES**
PHRYNOSOMATIDAE	**ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS**
Sceloporus occidentalis	western fence lizard
CLASS AVES	**BIRDS**
PODICIPEDIDAE	**GREBES**
Aechmophorus clarkii	Clark's grebe
PHALACROCORACIDAE	**CORMORANTS**
Phalacrocorax auritus	double-crested cormorant
ARDEIDAE	**HERONS, BITTERNS**
Egretta thula	snowy egret
THRESKIORNITHIDAE	**IBISES**
Plegadis chihi	white-faced ibis
ANATIDAE	**DUCKS, GEESE, SWANS**
Anas platyrhynchos	mallard
CATHARTIDAE	**NEW WORLD VULTURES**
Cathartes aura	turkey vulture
ACCIPITRIDAE	**HAWKS, KITES, EAGLES**
Buteo jamaicensis	red-tailed hawk
Circus cyaneus	northern harrier
FALCONIDAE	**FALCONS**
Falco columbarius	merlin
Falco sparverius	American kestrel
ODONTOPHORIDAE	**NEW WORLD QUAIL**
Callipepla gambelii	Gambel's quail
RALLIDAE	**RAILS, GALLINULES, COOTS**
Fulica americana	American coot
CHARADRIIDAE	**PLOVERS**
Charadrius vociferus	killdeer
RECURVIROSTRIDAE	**STILTS & AVOCETS**
Himantopus mexicanus	black-necked stilt
SCOLOPACIDAE	**SANDPIPERS**
Calidris minutilla	least sandpiper
Tringa semipalmata	willet
Limnodromus griseus	short-billed dowitcher
Limnodromus scolopaceus	long-billed dowitcher
COLUMBIDAE	**PIGEONS & DOVES**
Streptopelia decaocto	Eurasian collared-dove
Zenaida macroura	mourning dove

Scientific Name	Common Name
PICIDAE	**WOODPECKERS**
Colaptes auratus	northern flicker
TYRANNIDAE	**TYRANT FLYCATCHERS**
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Pyrocephalus rubinus	vermilion flycatcher
HIRUNDINIDAE	**SWALLOWS**
Hirundo rustica	barn swallow
Tachycineta thalassina	violet-green swallow
REMIZIDAE	**VERDINS**
Auriparus flaviceps	verdin
TROGLODYTIDAE	**WRENS**
Salpinctes obsoletus	rock wren
Troglodytes aedon	house wren
POLIOPTILIDAE	**GNATCATCHERS**
Polioptila caerulea	blue-gray gnatcatcher
Polioptila melanura	black-tailed gnatcatcher
MIMIDAE	**MOCKINGBIRDS, THRASHERS**
Mimus polyglottos	northern mockingbird
LANIIDAE	**SHRIKES**
Lanius ludovicianus	loggerhead shrike
PARULIDAE	**WOOD WARBLERS**
Setophaga nigrescens	black-throated gray warbler
Geothlypis trichas	common yellowthroat
ICTERIDAE	**BLACKBIRDS**
Agelaius phoeniceus	red-winged blackbird
Sturnella neglecta	western meadowlark
Quiscalus mexicanus	great-tailed grackle
FRINGILLIDAE	**FINCHES**
Haemorhous mexicanus	house finch

ARCHAEOLOGICAL AND PALEONTOLOGICAL ASSESSMENT REPORT FOR THE BRAWLEY SOLAR PROJECT, BRAWLEY, IMPERIAL COUNTY, CALIFORNIA

Prepared for:

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March 2021

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NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

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Firm: Chambers Group, Inc.

Client/Project Proponent: ORNI 30, LLC

Report Date: March 2021

Report Title: Archaeological and Paleontological Assessment Report for the Brawley Solar Project, Brawley, Imperial County, California

Type of Study: Cultural Resources Phase 1 Pedestrian Survey

New Sites: 6

Updated Sites: 1

USGS Quad: *Westmorland East* 7.5-minute quadrangle

Acreage: 225

Permit Numbers: N/A

Key Words: County of Imperial, City of Brawley, Positive Survey, CEQA, Intensive Pedestrian Survey, Best Canal, Spruce No. 3 Canal, Spruce No. 3 Drain, trash scatter, Niland to Calexico Railroad, *Westmorland East* USGS Quadrangle

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SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. (Chambers Group) was retained by ORNI 30, LLC (ORNI) to complete an archaeological assessment as well as a paleontological assessment, including a literature review and pedestrian survey, for the development of the Brawley Solar Project (Project) in Brawley, Imperial County (County), California. The proposed Project includes the construction and operation of a solar energy farm and associated facilities.

The purpose of this investigation is to assess the potential for significant archaeological and paleontological deposits and/or materials within the Project site and to determine if the current Project has the potential to adversely affect any significant cultural or paleontological materials. Chambers Group completed an archaeological and paleontological literature review, records search, and intensive pedestrian survey of the 225-acre proposed area. This report outlines the archaeological and paleontological findings and results of both efforts.

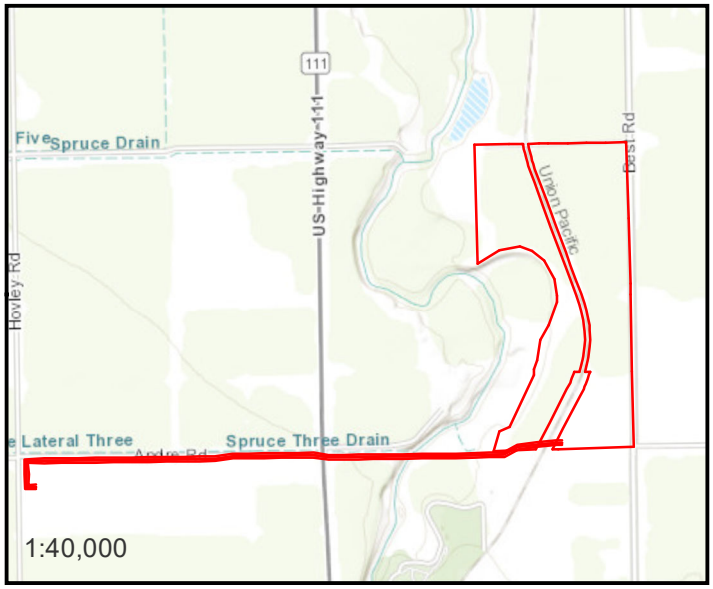
The following studies have been conducted in accordance with the California Environmental Quality Act (CEQA). This report includes appropriate mitigation measures to ensure less than significant impacts to any cultural and paleontological resources potentially affected during construction.

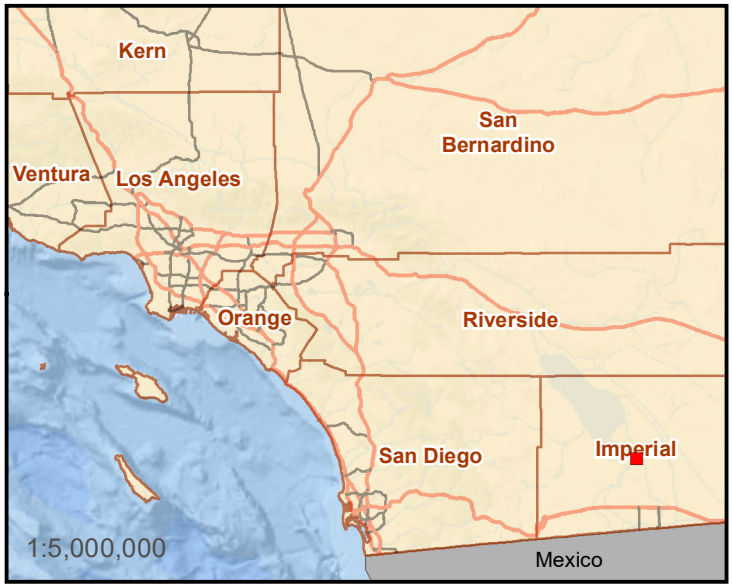
1.1 PROJECT DESCRIPTION

ORNI is proposing to build, operate, and maintain the Brawley Solar Energy Facility, a 40 megawatt (MW)/160 megawatt-hour (MWh) photovoltaic (PV) solar farm and 40 MW/160 MWh battery energy storage system (BESS) on approximately 225 acres in Brawley, Imperial County. Power generated by 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. 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. The Project would connect to the North Brawley Geothermal Power Plant southwest of the Project site via an approximately 1.6-mile-long aboveground 92 kilovolt (kV) generation tie line (gen-tie line). Energy generated and stored by the Project will 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.

1.2 PROJECT LOCATION

The Project is located 19 miles north of El Centro at North Best Avenue, Brawley, California, on six privately owned parcels (Project site). The Project is located within the U.S. Geological Survey (USGS) *Westmorland East*, California, 7.5-minute topographic quadrangle, Township 13 South, Range 14 East, in Sections 10, 15, 16, and 17. Currently the Project site contains fallow alfalfa fields. The Project site is bordered by undeveloped agricultural land to the north and east and a mixture of undeveloped agricultural land and dirt lots used for staging activities to the south, and the City of Brawley Wastewater Treatment Plant is located along the western edge of the Project site. The elevation at the Project site is approximately 145 feet below mean sea level (bmsl). Maps of the Project location and Project vicinity are provided in Figure 1.





Project Location

Figure 1
Brawley Solar Project
Project Location & Vicinity

N

0 500 1,000 2,000
Feet

Name: 21267 PLAN Fig 1 Project Location and Vicinity.Mxd
Print Date: 7/2/2021, Author: pcarlos

CHAMBERS GROUP

1.3 REGULATORY FRAMEWORK

1.3.1 California Environmental Quality Act

Work for this Project was conducted in compliance with CEQA. The regulatory framework as it pertains to cultural resources under CEQA is detailed below.

1.3.2 Paleontological Resources

CEQA requires that public agencies and private interests identify the potential environmental consequences of their projects on any object or site of significance to the scientific annals of California (Division I, California Public Resources Code [PRC] Section 5020.1 [b]). Appendix G in Section 15023 provides an Environmental Checklist of questions (PRC 15023, Appendix G, Section VII, Part f) that includes the following: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?" CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has provided guidance specifically designed to support state and federal environmental review. The SVP broadly defines significant paleontological resources as follows (SVP 2010, page 11): "Fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years)."

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiometric dating is possible. As such, common fossils (especially vertebrates) may be scientifically important and therefore considered significant.

1.3.3 Cultural Resources

Under the provisions of CEQA, including the CEQA Statutes (PRC §§ 21083.2 and 21084.1), the CEQA Guidelines (Title 14 California Code of Regulations [CCR], § 15064.5), and PRC § 5024.1 (Title 14 CCR § 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for California Register of Historical Resources (CRHR) eligibility (PRC § 5024.1).

The purpose of the CRHR is to maintain listings of the state's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term *historical resources* includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR § 15064.5[a]). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the National Register

of Historic Places (NRHP). The California Office of Historic Preservation (OHP 1995:2) regards "any physical evidence of human activities over 45 years old" as meriting recordation and evaluation.

California Public Resources Code

Section 5097.5 of the PRC states:

> "No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor."

As used in this PRC section, "public lands" means lands owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, public agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

California Register of Historic Resources

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing in the CRHR. The CRHR was designed to be used by state and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for inclusion in the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a "unique archeological resource" as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section. A *unique archaeological resource* is defined as follows:

- An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
- Has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a "unique archaeological resource" under CEQA PRC § 21083.2(g) are viewed as not significant. Under CEQA, "A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC § 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

Imperial County

Section III(B) of the Imperial County Conservation and Open Space Element describes the cultural resources, goals, and objectives to protect such resources (County of Imperial 2016). The planning goals and objectives are described below.

Goal 3 of the goals and objectives section of the Imperial County Conservation and Open Space Element addresses the preservation of cultural resources. Goal 3 states that the County will "preserve the spiritual and cultural heritage of the diverse communities of Imperial County" (County of Imperial 2016). Three objectives are enumerated to assist in implementation of the goal:

- **Objective 3.1:** Project and preserve sites of archaeological, ecological, historical, and scientific value, and/or cultural significance.
- **Objective 3.2:** Develop management strategies to preserve the memory of important historic periods, including Spanish, Mexican, and early American settlements of Imperial County.
- **Objective 3.3:** Engage all local Native American Tribes in the protection of tribal cultural resources, including prehistoric trails and burials sites.

City of Brawley

The section regarding Resource Management Elements (RME) in the City of Brawley General Plan Update 2030 describes the cultural and paleontological goals, objectives, and policies to protect such resources (City of Brawley 2008).

IMP-RME Goal 6: Preserve and Promote the Cultural Heritage of the City and Surrounding Region

- IMP-RME Program 6.1

Protect Historical and Archaeological Resources: During the development review process, identify proposed development projects located near or on sites with important archaeological and historic resources or in areas where cultural resources are expected to occur. Require a site inspection by a professional archaeologist and assess potential impacts of the proposed project on archaeological and/or historic resources. If significant impacts are identified according to Appendix K of the California Environmental Quality Act, either modify the project to avoid impacting the resource or implement mitigation measures to reduce the impact. Mitigation may involve archaeological investigation and resource recovery. Enforce the provision of the California Environmental Quality act regarding the preservation or salvage of significant historical and archaeological resources discovered before or during construction activities.

IMP-RME Goal 7: Preserve and Promote the Cultural Heritage of the City and Surrounding Region.

- RME Objective 7.1: Prevent the loss or compromise of significant archeological, historical, and other cultural resources located within the City.
    - RME Policy 7.1.1: Identify, designate, and protect facilities of historical significance and maintain an inventory.
    - RME Policy 7.1.2: Promote the education and awareness of the City's cultural resources.
    - RME Policy 7.1.3: The City shall consult with the Native American tribes under SB 18 for General Plan Amendments.
    - RME Policy 7.1.4: When significant archeological sites or artifacts are discovered on a site, coordination with professional archeologists, relevant state agencies, and concerned Native American tribes regarding preservation of sites or professional retrieval and preservation of artifacts prior to development of the site shall be required.
    - RME Policy 7.1.5: If archeological excavations are recommended on a project site, the City shall require that all such investigations include Native American consultation, which shall occur prior to project approval.
    - RME Policy 7.1.6: Require professionally prepared archaeological reports be completed by a certified archeologist. The report shall include a literature search and a site survey for any project located within a potential sensitive area as defined by the City's Important Archaeological Areas map or areas identified by the local Native American tribes.
    - RME Policy 7.1.7: Assure that adequate review of subsurface paleontological sensitivity is conducted prior to ground disturbance.
    - RME Policy 7.1.8: Ensure that development adjacent to a place, structure or object found to be of historic significance should be designed so that the uses permitted and the architectural design will protect the visual setting of the historical site.

- RME Policy 7.1.9: Consider acquisition of identified historical buildings for public uses.

Plan:

To prevent the destruction of important artifacts during development in these areas, the City will require a site inspection by a professional archaeologist during the development review process for all projects located in the potential resource area. If the archaeologist indicates that significant resources exist on the site and will be impacted by the proposed development project, the impact shall be avoided or mitigated according to the California Environmental Quality Act Guidelines. Mitigation may involve archaeological investigation and resource recovery. The City will also develop and maintain an inventory of archaeological sites in the Planning Area (City of Brawley 2008).

SECTION 2.0 – SETTINGS

2.1 ENVIRONMENTAL SETTING

The proposed Project is located within the mid-region of the lower Colorado Desert physiography. Brawley, Imperial County, California, has an average annual temperature of 72.3 degrees Fahrenheit (°F) (22.4 degrees Celsius [22°C]). Virtually no rainfall occurs during the year; about 2.4 inches of precipitation falls annually and the difference in precipitation between the driest month and the wettest month is 0.39 inch. Average temperatures vary during the year; the warmest month of the year is July, with an average temperature of 91.6 °F (33.1 °C). In January, the average temperature is 54.0 °F (12.2 °C) (Climate-Data 2021).

2.1.1 Habitats / Vegetation Communities

Seven vegetation communities — Quail Bush Scrub, Agricultural, Bare Ground, Disturbed, Bush Seepweed Scrub, Arrow Weed Thickets, and Tamarisk Thickets — were observed within the Project site.

Areas classified as Quail Bush Scrub are dominated by quail bush with scattered bush seepweed (*Sueda nigra*) present in areas where the habitat gently slopes into more alkaline soils. Plant species observed within the Project site included bush seepweed, big saltbush (*Atriplex lentiformis*), and spiny chlorocantha (*Chloracantha spinosa*). Large swaths of the Project site consist of plots of agricultural fields that are no longer in use. Bermuda grass (*Cynodon dactylon*) is found in these areas with alfalfa (*Medicago sativa*) seedlings in lower numbers.

Agricultural fields are similar to Bare Ground habitat where areas have higher water permeability and higher fossorial rodent habitat potential. Mexican palo verde (*Parkinsonia aculeata*) are planted along the outside of several agriculture fields as wind breaks for agricultural purposes; these areas are therefore considered agricultural habitat.

Bare Ground (BG) areas are generally devoid of vegetation but do not contain any form of pavement. BG has higher water permeability and higher fossorial rodent habitat potential. BG is present throughout the entire Project site with large, uninterrupted expanses in the eastern portion of the Project site. Scattered, dead Mediterranean tamarisk (*Tamarix* sp.) seedlings were the only vegetation observed in these areas.

Bush seepweed is dominant in the shrub canopy with scattered quail bush present. The shrub layer is intermittent to continuous with an herbaceous layer that is very sparse. Stands occur in gently sloping plains bordering agricultural fields or irrigation ditches and areas with disturbed hydrology due to man-made alteration. Soils are deep and saline or alkaline (Sawyer et al. 2009). Species observed within the Project site included bush seepweed and big saltbush.

The shrub canopy is intermittent to continuous, with shrubs reaching 2 to 3 meters in height. Vegetation is dominated by arrow weed (*Pluchea sericea*) and extends along the water feature, occasionally extending over the bank and into the access road. The herbaceous layer is open and intermittent, existing in between stands of cattail (*Typha* sp.) and arrow weed. The habitat exists in irrigation ditches consisting of soils that are sandy and loamy where water is permeable.

Plant species observed included arrow weed, tamarisk, cattail, big saltbush, saltgrass (*Distichlis spicata*), and salt heliotrope (*Heliotropium curassavicum*). Tamarisk dominates the tree canopy and is thick and

continuous. This non-native shrub layer is sparse with isolated quail bush present, while the herbaceous layer contains very little vegetation. Trees average 15 meters in height exist in irrigation ditches and on the upper banks along water features. Species observed within the Project site included tamarisk and big saltbush.

2.1.2 Geological and Paleontological

The survey area is located within the Imperial Valley and is within a large geologic structure referred to as the Salton Trough, a graben or rift valley extending approximately 1,000 miles in length. This graben was created when the San Andreas Fault system and the East Pacific Rise split Baja California from mainland Mexico approximately 5 million years ago. The southern portion of this rift valley is now known as the Gulf of California, while the northern part is known as the Salton Trough. Plate tectonic activity has continued to open this rift with the Salton Trough as the hinge point. The North American Plate is to the east and the Pacific Plate to the west. The Colorado River may have begun depositing huge loads of silt in the upper trough as early as 5.5 million years ago (Alles 2004).

By some time in the Pliocene Epoch (2 to 4 million years ago), the river had created a delta of sufficient height to form a dam isolating the Imperial Valley and Coachella Valley portions of the Salton Trough from the Gulf of California (Waters 1980). This silt dam continues to keep seawater out of the Salton Trough, which is more than 200 feet below sea level. A series of very high freshwater lake stands that occurred during the late Pleistocene have been documented in the Salton Trough, suggesting that the Colorado River began flowing into the Salton Trough on an occasional basis from that time. Ranging in elevation up to 170 feet above sea level, these Pleistocene freshwater lake shorelines date to between 25,000 and 45,000 years ago (Waters 1980). The height of these Pleistocene lake stands reflects the elevation of the natural silt dam which separates the Gulf from the Salton Trough. These Pleistocene lake stands have been called Lake Cahuilla to refer to both the Pleistocene and Holocene lakes (Waters 1980).

Site-Specific Geology and Soils

After review of U.S. Department of Agriculture (USDA) Soil Conservation Service and by referencing the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2020), it was determined that the survey area is located within the Imperial Valley Area (CA683); six soil types are known to occur within and/or adjacent to the site and are described below.

Badland occurs along the western portion of the Project site. The parent material is composed of alluvium. This soil is not rated as hydric, and the runoff class is high.

The Imperial Silty Clay complex is seen throughout the Project site. The parent material is clayey alluvium derived from mixed or clayey lacustrine deposits. The available water capacity is classified as moderate (approximately 8.3 inches) with a depth to the water table of more than 80 inches (USDA 2020).

Imperial Glenbar Silty Clay Loam occurs along the western portion and eastern edge of the Project site. The parent material is clayey alluvium derived from mixed and/or clayey lacustrine deposits. The available water capacity is moderate (approximately 8.6 inches) with a depth to the water table of more than 80 inches.

Indio-Vent complex occurs in the southern portion of the Project site just east of the New River. The parent material is alluvium derived from mixed and/or eolian deposits. The available water capacity is moderate (approximately 8.5 inches) with a depth to the water table of more than 80 inches.

Meloland Very Fine Sandy Loam occurs along the drainages in the southern portion of the Project site. The parent material is alluvium derived from mixed and/or eolian deposits. The available water capacity is moderate (approximately 7.8 inches) and a low runoff class. The depth to the water table is more than 80 inches.

Vint and Indio Very Fine Sandy Loam occurs along the drainage in the southwest portion of the Project site. The parent material is alluvium derived from mixed sources and/or eolian deposits. The available water capacity is moderate at about 6.8 inches. The depth to the water table is more than 80 inches.

Paleontological Significance

Lake Cahuilla was a former freshwater lake that periodically occupied a major portion of the Salton Trough during late Pleistocene to Holocene time (approximately 37,000 to 240 years ago), depositing sediments that underlie the entire Project site (mapped as Quaternary lake deposits by Jennings [1967]). Generally, Lake Cahuilla sediments consist of an interbedded sequence of both freshwater lacustrine (lake) and fluvial (river/stream) deposits. The Lake Cahuilla Beds have yielded well-preserved subfossil remains of freshwater clams and snails (Stearns 1901) and sparse remains of freshwater fish (Hubbs and Miller 1948). The paleontological resources of the Lake Cahuilla Beds are considered significant because of the paleoclimatic and palaeoecological information they can provide (Jefferson 2006), and these deposits are therefore assigned a high paleontological potential (SVP 2010).

Existing Conditions

The original survey area included a small section of the lot located on the southeast corner of Andre Road and Western Avenue. This 5.5-acre section of the Project area was not surveyed due to the presence of the existing, fenced-off Ormat Brawley North facility, which was built between 2006 and 2008 (NETR Online 2020). The level of disturbance was evaluated to be high, and it was determined unnecessary to survey that small section of the Project area.

2.2 CULTURAL SETTING

2.2.1 Prehistory

The Project site is located in the mid-section of the lower Colorado Desert, in which ancient Lake Cahuilla was situated – the present-day Salton Sea is illustrative of lower stands of the former Ancient Lake Cahuilla. In addition to paleontological potential, archaeological deposits found around the shoreline of Lake Cahuilla radiocarbon date to at least 1,440 years before present (B.P.) (Waters 1983; Hubbs et al. 1962) and shows demonstrable evidence of cultural activity in the area. Lake Cahuilla presented a massive freshwater oasis, allowing seasonal occupations resulting in archaeological deposits that include pottery, ground and chipped stone artifacts, and archaeological features such as rock fish traps (Waters 1983; Phukan et al. 2019). As an ethnographic landscape, the Cahuilla, Kumeyaay, Kamia, and the tribes which now comprise the Colorado River Indian Tribes (CRIT), the Mojave, Chemehuevi, Hopi, and Navajo settled in various locations around the basin, including the Colorado delta (Phukan et al. 2019). The Kumeyaay and Cahuilla constructed the stone fish trap features, which can be difficult to identify during pedestrian

transect survey. Moreover, evidence from middens and human coprolites suggest subsistence on either razorback suckers or bonytail chubs, demonstrating environmental importance of this area (Phukan et al. 2019). Cultural resources located in the area tend to be associated with Lake Cahuilla due to its temporal context and functional use as a landscape, which yield archaeological data of high significance regarding how people adapted to the changing environment around the lake.

Archaeological studies have been limited in the Salton Sea desert region. This paucity of archaeological investigation has resulted in undefined and imperfect archaeological classification schemas and typologies. Therefore, the prehistoric time periods used by archaeologists to describe the southern Imperial County desert region borrow heavily from those chronologies established for San Diego County prehistory, with some minor Colorado Desert-specific clarifications. The three general time periods accepted in the region are the San Dieguito Complex, the Archaic period, and the Late Prehistoric period. These periods are briefly described below.

The earliest recognized occupation of the region, dating to 10,000 to 8,000 years before present (B.P.), is known as the San Dieguito complex (Rogers 1939, 1945). Assemblages from this occupation generally consist of flaked stone tools. Evidence of milling activities is rare for sites dating to this period. It is generally agreed that the San Dieguito complex shows characteristics of the Western Pluvial Lakes Tradition (WPLT), which was widespread in California during the early Holocene. The WPLT assemblage generally includes scrapers, choppers, and bifacial knives. Archaeologists theorize this toolkit composition likely reflects a generalized hunting and gathering society (Moratto 1984; Moratto et al. 1994; Schaeffer and Laylander 2007).

The following period, the Archaic (8,500 to 1,300 B.P.), is traditionally seen as encompassing both coastal and inland adaptations, with the coastal Archaic represented by the shell middens of the La Jolla complex and the inland Archaic represented by the Pauma complex (True 1980). Coastal settlement is also thought to have been significantly affected by the stabilization of sea levels around 4,000 years ago that led to a general decline in the productivity of coastal ecosystems. Artifacts associated with this period include milling stones, unshaped manos, flaked cobble tools, Pinto-like and Elko projectile points, and flexed inhumations (Schaefer and Laylander 2007). Colorado Desert rock art studies have led researchers to suggest Archaic-Period origins for many petroglyph and pictograph styles and elements common in later times (Whitley 2005). More recently, several important late Archaic-period sites have been documented in the northern Coachella Valley, consisting of deeply buried middens with clay-lined features and living surfaces, cremations, hearths, and rock shelters. Faunal assemblages show a high percentage of lagomorphs (rabbits and hares). The larger sites suggest a more sustained settlement type than previously known for the Archaic period in this area (Schaefer and Laylander 2007).

The Late Prehistoric period (1,300 to 200 B.P.) is marked by the appearance of small projectile points indicating the use of the bow and arrow, the common use of ceramics, and the general replacement of inhumations with cremations, all characteristic of the San Luis Rey complex as defined by Meighan (1954). The San Luis Rey complex is divided temporally into San Luis Rey I and San Luis Rey II, with the latter distinguished mainly by the addition of ceramics. Along the coast of northern San Diego County, deposits containing significant amounts of Donax shell are now often assigned to the Late Prehistoric, based on a well-documented increase in the use of this resource at this time (e.g., Byrd and Reddy 1999). The inception of the San Luis Rey complex is suggested by True (1966; True et al. 1974) to mark the arrival of Takic speakers from regions farther inland. Waugh (1986) is in general agreement with True but suggests that the migration was probably sporadic and took place over a considerable period. Titus (1987) cites burials showing physical differences between pre- and post-1,300 B.P. remains to further support this

contention. However, some researchers have suggested that these Shoshonean groups may have arrived considerably earlier, perhaps as early as 4,000 years ago. Vellanoweth and Altschul (2002:102-105) provide an excellent summary of the various avenues of thought on the Shoshonean Incursion.

2.2.2 Ethnography

The Project site was occupied by the Cahuilla, Quechan, Kumeyaay, Kamia, and the Colorado River Indian Tribes (CRIT). The two closest tribal reservations to the Project site are the Torres-Martinez Reservation located to northwest of the Project site and Fort Yuma reservation located to the southeast of the Project site. The Torres-Martinez Indian Reservation is currently home to the desert Cahuilla Indians and is on the northwest side of the Salton Sea, roughly 55 miles from the Project site. Fort Yuma is located approximately 51 miles closer to the California-Arizona border and is the home of the Quechan. Following is a brief ethnographic and archaeological summary of the Cahuilla, Quechan, Kumeyaay, Kamia, and CRIT.

Cahuilla

The Project site currently falls within the ethnographic territory of the Cahuilla, whose ancestors may have entered this region of Southern California approximately 3,000 years ago (Moratto 1984: 559-560). The Cahuilla ancestral territory is located near the geographic center of Southern California and varied greatly topographically and environmentally, ranging from forested mountains to desert areas. Natural boundaries such as the lower Colorado Desert provided the Cahuilla separate territory from the neighboring Mojave, Ipai, and Tipai. In turn, mountains, hills, and plains separated the Cahuilla from the adjacent Luiseño, Gabrielino, and the Serrano (Bean 1978: 575).

The Cahuilla relied heavily on the exploitation and seasonal availability of faunal and floral resources through a pattern of residential mobility that emphasized hunting and gathering. Important floral species used in food, for manufacturing of products, and/or for medicinal uses primarily included acorns, mesquite and screw beans, piñon nuts, and various cacti bulbs (Bean 1978:578). Coiled-ware baskets were common and used for a variety of tasks including food preparation, storage, and transportation (Bean 1978:579).

Networks of trails linked villages and functioned as hunting, trading, and social conduits. Trade occurred between the Cahuilla and tribes such as the Gabrielino as far west as Santa Catalina and the Pima as far east as the Gila River. Both goods and technologies were frequently exchanged between the Cahuilla and nearby Serrano, Gabrielino, and Luiseño cultural groups (Bean 1978:575-582).

The Cahuilla are believed to have first come into contact with Europeans prior to the Juan Bautista de Anza expedition in 1774; however, little direct contact was established between the Cahuilla and the Spanish except for those baptized at the Missions San Gabriel, San Luis Rey, and San Diego (Bean 1978:583-584). Following the establishment of several *asistencias* near the traditional Cahuilla territories, many Spanish cultural forms — especially agriculture and language — were adopted by the Cahuilla people (Bean 1978:583-584; Lech 2012:17-30).

Through the Rancho and American periods, the Cahuilla continued to retain their political autonomy and lands despite more frequent interactions with European-American immigrants. In 1863, a large number of the population was killed by a sweeping smallpox epidemic that affected many of the tribal groups in Southern California. The first reservations established in Imperial County ca. 1865 saw many of the Cahuilla remaining on their traditional lands. After 1891, however, all aspects of the Cahuilla economic,

political, and social life were closely monitored by the federal government; a combination of missionaries and government schools drastically altered the Cahuilla culture (Bean 1978:583-584).

Quechan

The Quechan are a Native American Tribe that primarily occupied the surrounding area of the Gila and Colorado Rivers. Historically, the Quechan people were given the name "Yuma" by the Spanish explorers. They are one of several Yuman-speaking groups that resided in California and western Arizona (Bee 1983).

The Quechan lived in small settlements located along the Colorado River, north and south of the Gila River confluence, and along the Gila River. These settlements consisted of several hundred people organized into extended family groups. These settlements were created to be on the move. Often times the families would move into the river bottom during the summer farming season and would return to the high banks of the river during spring flooding. The settlements would also move up or down the rivers depending on food shortages or warfare. Substantial housing was not common among Quechan villages because of the warm climate. Dome-shaped arrow weed houses and ramadas were the most common since it allowed for airflow (Bee 1983; Kroeber 1976).

The Quechan were primarily gatherers and farmers. Hunting wild game was not a viable option due to the harsh desert conditions found outside the Colorado River floodplain. The Quechan cultivated food such as maize, melons, pumpkins, wild grass seeds, and beans. Other crops such as black-eyed beans, watermelon, and wheat were introduced by European immigrants. The Quechan practiced a varied farming strategy, meaning they would plant several food crops at various time of the year. Maize and melons were often planted in February and were not dependent on seasonal flooding. Other crops were planted after the spring flooding of the Colorado River. In autumn, wheat was often planted and harvested just before the spring flooding; while wild grasses, which provided seeds that were ground into a meal, were planted into less fertile soils. Some other wild foods were screw bean pods and mesquite, which could be gathered in times of a low-yielding crop year (Bee 1983; Kroeber 1976).

Warfare was a basis of Quechan culture. They often used two types of warfare: the raiding party and the war party. The raiding party was often used to evoke mayhem and capture horses or captives. The war party consisted of a village raid followed by an organized battle in which both parties would face one another in two lines ending in hand-to-hand combat. Warfare among the tribes was intertwined with myth and ceremony. Traditionally, warfare was connected to ritual and tribal prestige rather than conflict over resources or territory. The Quechan often engaged in warfare with both the Maricopa and the Cocopah, who were sometimes called the Pima. Warfare may have increased in intensity and scale in the eighteenth and early nineteenth century for economic reasons. This departure from the ritual warfare tradition may have been related to the taking of captives to trade to the Spanish for horses or other goods (Bee 1983; Kroeber 1976).

Kumeyaay

The Native American people occupying the region also included the Kumeyaay. The Kumeyaay or Tipai-Ipai were formerly known as the Kamia or Diegueños, the former Spanish name applied to the Mission Indians living along the San Diego River and are referred to as the Kumiai in Mexico. Today, members of the tribe prefer to be called Kumeyaay (Luomala 1978). The territory of the Kumeyaay extended north from Todos Santos Bay near Ensenada, Mexico, to the mouth of the San Luis Rey River in north San Diego County, and east to the Sand Hills in central Imperial Valley near the current Project site. The Kumeyaay

occupied the southern and eastern desert portions of the territory, while the Ipai inhabited the northern coastal region (Luomala 1978).

The primary source of subsistence for the of Kumeyaay was vegetal food. Seasonal travel followed the ripening of plants from the lowlands to higher elevations of the mountain slopes. Buds, blossoms, potherbs, wild seeds, cactus fruits, and wild plums were among the diet of Kumeyaay. The Kumeyaay practiced limited agriculture within the floodplain areas of their territory. Melons, maize, beans, and cowpeas were planted. Women sometimes transplanted wild onion and tobacco plants to convenient locations and sowed wild tobacco seeds. Deer, rodents, and birds provided meat as a secondary source of sustenance. Families also gathered acorns and piñon nuts at the higher altitudes. Village locations were selected for seasonal use and were occupied by exogamous, patrilineal clans. Three or four clans would winter together and then disperse into smaller bands during the spring and summer (Luomala 1978).

Kumeyaay structures varied with the seasons. Summer shelter consisted of a wind break, tree, or a cave fronted with rocks. Winter dwellings had slightly sunken floors with dome-shaped structures made of brush thatch covered with grass and earth (Gifford 1931; Luomala 1978).

Upon death, the Kumeyaay cremated the body of the deceased. Ashes were placed in a ceramic urn and buried or hidden in a cluster of rocks. The family customarily held a mourning ceremony one year after the death of a family member. During this ceremony, the clothes of the deceased individual were burned to ensure that the spirit would not return for his or her possessions (Gifford 1931; Luomala 1978).

It is estimated that the pre-contact Kumeyaay population living in this region ranged from approximately 3,000 (Kroeber 1925) to 9,000 (Luomala 1978). Beginning in 1775, the semi-nomadic life of the Kumeyaay began to change as a result of contact with European-Americans, particularly from the influence of the Spanish missions. Through successive Spanish, Mexican, and Anglo-American control, the Kumeyaay people were forced to adopt a sedentary lifestyle and accept Christianity (Luomala 1978). As of 1968, Kumeyaay population was somewhere between approximately 1,322 (Shipek 1972 in Luomala 1978) and 1,522 (Luomala 1978), and by 1990 an estimated 1,200 Kumeyaay lived on reservation lands while 2,000 lived elsewhere (Pritzker 2000).

Trade was a very important feature of Kumeyaay subsistence; coastal groups traded salt, dried seafood, dried greens, and abalone shells to inland and desert groups for products such as acorns, agave, mesquite beans, and gourds (Almstedt 1982:10; Cuero 1970:33; Luomala 1978:602). Travel and trade were accomplished by means of an extensive network of trails. Kumeyaay living in the mountains of eastern San Diego County frequently used these trails to travel down to the Kamia settlement of *Xatopet* on the east/west portion of the Alamo River to trade and socialize in winter (Castetter and Bell 1951; Gifford 1918:168; Spier 1923:300; Woods 1982).

Kamia

The Kamia lived to the east of the Project site in an area that included Mexicali and bordered the Salton Sea. The traditional territory of the Kamia included the southern Imperial Valley from the latitude of the southern half of the Salton Sea to well below what is now the United States–Mexico international border (Forbes 1965; Luomala 1978:593). The Kamia tribe of Indigenous Peoples of the Americas live at the northern border of Baja California in Mexico and the southern border of California in the United States. Their main settlements were along the New and Alamo Rivers (Gifford 1931). Their Kumeyaay language belongs to the Yuman–Cochimí language family.

Subsistence of the Kamia consisted of hunting and gathering and floodplain horticulture (Barker 1976; Gifford 1931). In normal years, the Colorado River would overflow its banks in the spring and early summer and fill rivers such as the New and Alamo. When the floodwaters receded, the Kamia would plant in the mud. A dam was maintained at *Xatopet* on the east/west portion of the Alamo River to control water flow and allow farming in years when water flow was insufficient (Castetter and Bell 1951:43). Gifford (1931:22) and Castetter and Bell (1951:43) suggested these were recent adaptations and not traditional life ways. Bean and Lawton (1973); Lawton and Bean (1968), and Shipek (1988) argue that irrigation was indigenous.

The Kamia's major food staple was mesquite and screwbean, called by the Kamia *anxi* and *iyix*, respectively (Gifford 1931:23), along with the seeds of the ironwood (*Olneya tesota*), also known as *palo fierro* in Spanish, and palo verde were also used. Neither palo verde nor ironwood was considered a particularly desirable food resource (Castetter and Bell 1951:195-196). Acorns, also an important seasonal food, were gathered in the mountains to the west of Kamia territory in October and acquired through trade from the southern Kumeyaay (Gifford 1931).

Hunting contributed to the diet in a minor way in terms of overall caloric intake but provided valuable protein and skin and bone for clothing, blankets, and tools. Small game, primarily rabbits, was most frequently taken, using bow and arrow or rabbit stick (*macana*). Sometimes fires were set along sloughs to drive rabbits out. Individuals with bow and arrow also hunted deer and mountain sheep. Fish were also taken in sloughs with bow and arrow and by hand, hooks, basketry scoops, and seine nets (Gifford 1931:24).

Colorado River Indian Tribes

The population of the CRIT reservation comprises people from the Mojave, Chemehuevi, Hopi, and Navajo. While the Hopi and Navajo were forced into the reservation from further east, both the Mojave and Chemehuevi have been in this region since the tribe split off from the Southern Paiute in the area of current-day Las Vegas (Bean and Vane 2002). Although the origins of the Chemehuevi are of the Southern Paiute, their culture has been heavily influenced by the Mojave (Deur and Confer 2012), testifying to the close relationship between the two tribes. Relationships between the Chemehuevi and the Mojave have not always been peaceful; however, the Mojave retained the rights to travel through the newly established Chemehuevi territory (Bean and Vane 2002).

The subsistence pattern of the Chemehuevi was agriculturally based. Maize, squash, melons, gourds, beans, cowpeas, winter wheat, and some grasses were key crops grown in the floodplain areas along the Colorado River. Hunting and gathering were also important elements of the subsistence strategy undertaken by younger adults while the elderly stayed in the village to tend to the crops (Deur and Confer 2012).

Spiritually, the Chemehuevi were tied to their land, with spiritual power coming from particular landmarks within their territory such as mountain peaks, caves, or springs. Puha trails link the landmarks together and are also considered to have spiritual power (Deur and Confer 2012). The manner in which ceremonies were practiced showed the tribe's close ties with the Mojave. Hunting and gathering traditions followed the traditional Paiute pattern, as did burial practices. Other ceremonial practices testify to the Mojave influence (Deur and Confer 2012).

Mojave were also agrarian and had a reliance on fishing in the Colorado River. It should be noted that the Chemehuevi deferred fishing rights to the Mojave (Deur and Confer 2012). The Mojave people during the protohistoric and historic times were semi-sedentary. Floodplain farming was common, and the Colorado River made up the center of their territory. The extent of their territory extended on either side of the Colorado River to the east as far as the highest crest of the Black Mountains, the Buck Mountains, and the Mojave Mountains and to the west to the Sacramento, Dead, and Newberry Mountains. From north to south their territory ran from the Mohave Valley to south of what is now the City of Blythe (Bean and Vane 2002).

The Mojave peoples were nationalistic, considering their home territory to be their own country (Deur and Confer 2012). Frequently warring with the Halchidoma, the Mojave and Quechan joined forces to evict the Halchidoma from their territory. The Mojave then encouraged the Chemehuevi to move into the river area (Russell et al. 2002). Trade was of particular importance to the Mojave, who had extensive trail networks to take them to the Pacific Coast in the west, and to the Cahuilla in the south and east (Bean and Vane 2002).

In the spring and summer months the Mojave lived along the banks of the Colorado River where they harvested crops and fished for sustenance. Crops were planted in the spring as the river, swollen from the winter rains, receded. Seeds were planted in the newly exposed and saturated mud. While the Mojave peoples relied on their crops, their major food staple was mesquite and screwbean pods, which were gathered. In the winter they moved their settlement areas to rises above the river to avoid seasonal flooding (Russell et al. 2002).

2.2.3 History

The first significant European settlement of California began during the Spanish Period (1769 to 1821) when 21 missions and four presidios were established between San Diego and Sonoma. Although located primarily along the coast, the missions dominated economic and political life over the greater California region. The purpose of the missions was primarily for political control and forced assimilation of the Native American population into Spanish society and Catholicism, along with economic support to the presidios (Castillo 1978).

In the 1700s, due to pressures from other colonizers (Russians, French, British), New Spain decided that a party should be sent north with the idea of founding both military presidios and religious missions in Alta California to secure Spain's hold on its lands. The aim of the party was twofold. The first was the establishment of presidios, which would give Spain a military presence within its lands. The second was the establishment of a chain of missions along the coast slightly inland, with the aim of Christianizing the native population. By converting the native Californians, they could be counted as Spanish subjects, thereby bolstering the colonial population within a relatively short time (Lech 2012: 3-4).

The party was led by Gaspar de Portolá and consisted of two groups: one would take an overland route, and one would go by sea. All parties were to converge on San Diego, which would be the starting point for the chain of Spanish colonies. What became known as the Portolá Expedition set out on March 24, 1769. Portolá, who was very loyal to the crown and understood the gravity of his charge, arrived in what would become San Diego on July 1, 1769. Here, he immediately founded the presidio of San Diego. Leaving one group in the southern part of Alta California, Portolá took a smaller group and began heading north to his ultimate destination of Monterey Bay. Continuing up the coast, Portolá established Monterey Bay as a Spanish possession on June 3, 1770, although it would take two expeditions to accomplish this task.

Having established the presidios at San Diego and Monterey, Portolá returned to Mexico. During the first four years of Spanish presence in Alta California, Father Junípero Serra, a member of the Portolá expedition and the Catholic leader of the new province, began establishing what would become a chain of 21 coastal missions in California. The first, founded concurrently at San Diego with the presidio, was the launching point for this group. During this time, four additional missions (San Carlos Borromeo de Carmelo, San Antonio de Padua, San Gabriel Arcángel, and San Luis Obispo de Tolosa) were established (Lech 2012: 1-4).

The Mexican Period (1821-1848) began with the success of the Mexican Revolution in 1821, but changes to the mission system were slow to follow. When secularization of the missions occurred in the 1830s, the missions' vast land holdings in California were divided into large land grants called ranchos. The Mexican government granted ranchos throughout California to Spanish and Hispanic soldiers and settlers (Castillo 1978; Cleland 1941). Even after the decree of secularization was issued in 1833 by the Mexican Congress, missionaries continued to operate a small diocesan church. In 1834, the San Gabriel Mission, including over 16,000 head of cattle, was turned over to the civil administrator.

In 1848, the Treaty of Guadalupe Hidalgo ended the Mexican American War and marked the beginning of the American Period (1848 to present). The discovery of gold that same year sparked the 1849 California Gold Rush, bringing thousands of miners and other new immigrants to California from various parts of the United States, most of whom settled in the northern part of the state. For those settlers who chose to come to southern California, much of their economic prosperity was fueled by cattle ranching rather than by gold. This prosperity, however, came to a halt in the 1860s because of severe floods and droughts, as well as legal disputes over land boundaries, which put many ranchos into bankruptcy.

Imperial County was formed in 1907 from a portion of San Diego County known as Imperial Valley and is the newest of California's counties. It is known for being one of California's most prosperous agricultural communities because of its vast canal systems stemming from the Colorado River. The first diversion of the Colorado River was in 1905 and continued through 1942 when the All-American Canal was completed. It is this water, conveyed from the Colorado River, that makes Imperial County so rich (Hoover et al. 2002).

City of Brawley

Just as the Imperial Valley was starting to develop, a circular was released by the U.S. Government in 1902 claiming nothing would grow in this desert area, even with plentiful water. This now famous "libel" changed the name of Brawley, which was initially slated to be called Braly. A man named J.H. Braly from Los Angeles had underwritten shares of water stock and was assigned 4,000 acres of land at the center of the site where Brawley now stands. When Braly read this circular, he appealed to the Imperial Land Company to be released from his bargain. They told him they expected to build a city on his land and call it Braly. However, J.H. Braly wanted no part of it; he did not want his name connected with what he envisioned as a failure. George E. Carter, who was building the grade for the new railroad, heard of Braly's wish and took over Braly's contract for the 4000 acres (City of Brawley 2020).

The Imperial Land Company got wind of the deal and sent emissaries to Carter, who sold out. Meanwhile, A.H. Heber (a principal in the townsite organizing company) had a friend in Chicago by the name of Brawley and suggested the town be called that name. The company ordered the new town platted in October of 1902. Brawley had a petition signed and was ready to incorporate in June 1907 but deferred the matter until the new Imperial County was formed out of a portion of San Diego County that year. Then

in February 1908, a petition was filed, and Brawley was allowed to call an election. The vote was 34 to 22 in favor of incorporation (City of Brawley 2020).

For more than a century, Brawley has remained close to its roots of being a small, agricultural community. Many of its businesses cater to area farmers and ranchers who also call Brawley home. From the beginning, those who believed in Brawley were successful in creating imaginative ways to develop an oasis in what was once a hostile environment. Now as then, the town folk of Brawley pull together to create a united vision that is attractive to visitors, homeowners, consumers, developers and businesspeople alike. Incorporated in 1908, was a “tent city” of only 100 persons who were involved in railroads and the earliest introduction of agriculture. It had a population of 11,922 in 1950, but population growth was slow from the 1960s to the early 1990s (City of Brawley 2020).

SECTION 3.0 – RESEARCH DESIGN

3.1 PALEONTOLOGICAL RESOURCES

Chambers Group conducted a desktop review that included a review of published and unpublished paleontological literature and a search of museum records obtained by the San Diego Natural History Museum (SDNHM; McComas 2020; [Confidential Appendix A]). Using the results of the literature review and records search, Chambers Group evaluated the paleontological resource potential of the geologic units underlying the Project site. A field survey was conducted for the geologic units identified as highly sensitive to assist in determining where paleontological monitoring may be necessary during Project implementation.

Determining the probability that a given project site might yield paleontological resources requires a knowledge of the geology and stratigraphy of the project site, as well as researching any nearby fossil finds by: (1) reviewing published and unpublished maps and reports; (2) consulting online databases; (3) seeking any information regarding pertinent paleontological localities from local and regional museum repositories, and (4) if needed, conducting a reconnaissance site visit or paleontological resources field survey.

The University of California Museum of Paleontology (UCMP) online paleontological database was used to search for previously recorded paleontological localities in the Project vicinity (November 2020). Only a single right dentary fragment from a Camelidae species was found near Coachella in 1953 (V5303). In addition, Chambers Group obtained paleontological record search data from the San Diego Natural History Museum (SDNHM) on October 07, 2020 (McComas 2020). The SDNHM determined that the proposed Project has the potential to impact late Pleistocene to Holocene-age Lake Cahuilla Beds. Eight recorded fossil localities have been recorded by the SDNHM within a 1-mile radius of the Project site including three localities that were recovered during paleontological monitoring of excavations at the borrow pit for the California Department of Transportation (Caltrans) Brawley Bypass project located along the west side of the proposed Project (McComas 2020). These discoveries include fragments of petrified wood, foraminiferal tests, shells of freshwater snails, mussels, pea clams, and ostracods, as well as bones and teeth of freshwater bony fish, a phalanx (toe bone) of an amphibian, and isolated postcranial remains of unidentified rodents, canids, and felids.

3.2 CULTURAL RESOURCES

A records search dated October 14, 2020, was obtained from the South Coastal Information Center (SCIC) at San Diego State University (Confidential Appendix A). The records search provided information on all documented cultural resources and previous archaeological investigations within the 1-mile record search radius. Resources consulted during the records search conducted by the SCIC included the NRHP, California Historical Landmarks, California Points of Historical Interest, and the CRHR Inventory. Results of the records search and additional research are detailed below.

3.2.1 Reports within the Study Area

Based upon the records search conducted by the SCIC, 14 cultural resource studies have previously been completed within the 1-mile records search radius. Of the 14 previous studies, 9 of these studies were within the current Project site and are shown in bold (Table 1).

Table 1: Previous Cultural Resources Studies within the Study Area

Report Number	Year	Author	Title*	Resources
IM-00079	1976	Von Werlhof, Jay, and Sherilee Von Werlhof	Archaeological examinations of certain geothermal test well sites near Brawley.	N/A
IM-00095	1977	Von Werlhof, Jay, and Sherilee Von Werlhof	Archaeological examinations of five (5) geothermal test well sites near Brawley.	N/A
IM-00146	**1978**	**Von Werlhof, Jay and Sherilee Von Werlhof**	**Archaeological examinations of a proposed geothermal test area near Brawley.**	**N/A**
IM-00476	1993	Singer, Clay A., John Atwood, and Shelley Marie Gomes	Cultural Resource Records Search for Southern California Gas Company Line 6902 South Imperial County, California.	N/A
IM-00602	1996	Von Werlhof, Jay	Archaeological examination of the Davis Material Site: Reclamation Plan #177-95-COP #1187-95.	N/A
IM-00657	**1998**	**Crafts, Karen C.**	**Negative Archaeological survey report for the proposed widening of shoulders on State Route 111 in Imperial County between the cities of Brawley and Calipatria.**	**N/A**
IM-00671	**1999**	**Crafts, Karen C.**	**Historic Property Survey for State Route 78/111 Brawley Bypass.**	**N/A**
IM-00692	**1998**	**Crafts, Karen**	**Historic Property Survey Report-Negative Findings-Widening the shoulders on State Route 111 in Imperial County between the cities of Brawley and Calipatria.**	**N/A**
IM-00834	**1998**	**Crafts, Karen C.**	**Negative Archaeological Survey Report for the Construction of the State Route 78/111 Brawley Bypass.**	**N/A**
IM-00835	**1989**	**Fisher, Jim**	**Historic Architectural Survey report for the Brawley bypass Imperial County.**	**N/A**
IM-00913	2003	Perry, Laureen M.	An Intensive Cultural Resources Inventory of 30 acres for the Brawley Wastewater Treatment Wetlands Pilot Project in Brawley, Imperial County, California	N/A
IM-01149	**1999**	**Eckhardt, William T.**	**Archaeological Constraints Report for the proposed expansion of Brawley Wastewater Treatment Plant.**	**N/A**
IM-01158	**1996**	**Archaeological Consulting Services, LTD.**	**An Archaeological Assessment of the Niland-Imperial Pipeline Expansion Corridor, Imperial County, California.**	**13-005951**
IM-01228	**2006**	**SWCA Environmental Consultants**	**Volume 1- Cultural Resources Final Report of Monitoring and Findings for the QWEST Network Construction Project, State of California.**	**N/A**

***Bold reports are within Project site boundaries**

3.2.2 Previously Recorded Cultural Resources within the Study Area

Based upon the records search conducted by the SCIC, five previously recorded cultural resources were recorded within the 1-mile record search radius. Results show that none of the previously recorded resources are mapped within the Project site boundaries (Table 2).

Table 2: Previously Recorded Cultural Resources within the Study Area

Primary Number	Trinomial	Age	Site Description	Inside Project Site Boundaries	Relocated
P-13-00880	CA-IMP-00880	Prehistoric	Indian Trail N.W & S.E.	Outside	N/A
P-13-02409	CA-IMP-02409	Prehistoric	Small ceramic kiln site	Outside	N/A
P-13-07993	CA-IMP-07993	Historic	Moderate-size farm complex	Outside	N/A
P-13-07994	CA-IMP-07994	Historic	Single-story rectangular structure	Outside	N/A
P-13-08682	CA-IMP-08166H	Historic	Portion of the Niland to Calexico Railroad	Outside	Yes

3.2.3 Native American Heritage Commission

Sacred Lands File Search

Chambers Group submitted a request for a search of the Sacred Lands Files (SLF) housed at the California Native American Heritage Commission (NAHC) on October 2, 2020. The results of the search were returned on October 28, 2020, and were positive. The NAHC response provided contact information for the 18 tribes that may have information on cultural resources on the Project site.

Letters requesting information were sent via certified mail on October 19, 2020. Emails were also sent to the contacts in an effort to elicit a quicker response. As of February 1, 2020, the Viejas Band of Kumeyaay Indians has requested to be involved with monitoring efforts. Consultation and communications are ongoing with San Pasqual Band of Mission Indians, who have also requested to be involved as the Project progresses. The Agua Caliente Band of Cahuilla Indians declined involvement and defers to the other tribes in the area. Communication with the remaining 15 tribes is ongoing.

SECTION 4.0 – FIELD METHODS

Survey of the Project site took place over the course of November 2 and 5, 2020, and included Chambers Group archaeologists Kellie Kandybowicz, B.A., Sarah Roebel, B.A., and paleontologist Niranjala Kottachchi, M.A. The Project site was surveyed at 15-meter intervals, and crews were equipped with submeter accurate Global Positioning Systems (GPS) units for recording spatial data and to document the survey area and all findings through ArcGIS Collector and Survey 123. The purpose of the field survey was to visually inspect the ground surface for both paleontological and archaeologically significant materials. No geographic obstructions or impediments were present, and the crew was able to survey the Project site in its entirety. Much of the proposed Project survey area was vegetated by agricultural fields (Figure 4) while others were in areas previously disturbed for emplacement of water channels and culverts for agricultural purposes. In agricultural fields on the eastern side of the Project area, visibility ranged from 10 percent to 90 percent; the remainder of the Project area had 100 percent visibility.

The paleontologist examined the surface soils, assessed for exposed fossils, and evaluated the stratigraphy for its potential to contain preserved paleontological resources. The survey focused on areas underlain by ancient Lake Cahuilla Beds previously interpreted to have a high sensitivity to produce paleontological resources. Sediment approximately 2 inches below the surface was examined to determine the geologic unit (s) present. Active drainages exposing the subsurface deposits were visually scanned for paleontological resources. Notes were taken on the geology and lithology of the geologic unit(s), and photographs were taken to document the survey (Figures 2 and 3).

The archaeologists assessed the ground surface for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools), historic-period artifacts (e.g., metal, glass, ceramics), and sediment discoloration that might indicate the presence of a cultural midden, as well as depressions and other features indicative of the former presence of structures or buildings (e.g., post holes, foundations). When an artifact or feature was observed during survey, the GPS data were recorded using the ArcGIS Collector application; photographs and measurements were taken; and, when applicable, for historic glass artifacts, the maker's marks and date codes were recorded for further analysis and post-processing.

SECTION 5.0 – RESULTS

5.1 RESULTS OF PALEONTOLOGICAL SURVEY

Late Pleistocene to Holocene Lake Cahuilla deposits exposed and/or underlying the proposed Project area consist of dark brown to gray, silty clays interpreted as freshwater lacustrine; and, in drainages where exposed, these same sediments are interbedded with finer to medium sands containing pebbles. The latter indicates the influence of fluvial action within the environment.

No paleontological resources were discovered during the survey within exposed cuts. Numerous bivalves and gastropods were, however, identified on the surface in exposed sediments around the perimeter of agricultural fields. These finds were in silty clays resembling Lake Cahuilla Beds, but it is uncertain as to what depth these finds came from. They appear to be in sediments that may have been disturbed during previous excavations for the emplacement of canals and water drainages.

5.2 RESULTS OF ARCHAEOLOGICAL SURVEY

Archival records search, background studies, and intensive pedestrian survey of the Project site were conducted as part of a Phase I cultural resource study. The NAHC Sacred Lands File search returned a positive result. A records search request was submitted to the SCIC at San Diego State University, San Diego, October 5, 2020. The records search results (Confidential Appendix A) were received on October 22, 2020 The results indicate that five previously recorded resources have been identified within a 1-mile radius of the Project site; none are mapped within the Project site boundaries. These results are summarized in Table 2 above. In addition, 14 cultural resources studies have been conducted in the vicinity, with 9 being within the Project site (Table 1).

During completion of the survey, resource CA-IMP-08166H was relocated. Although not mapped within the actual Project site boundaries, a segment of CA-IMP-8166H was relocated due to its bisecting position between the two adjacent Project areas. Additionally, six newly recorded historic-period resources were identified (Table 3). The new historic-period resources were fully documented with the appropriate DPR 523 series forms for each of the new resources and will be submitted to the SCIC for inclusion in the archaeological database (Confidential Appendix B). These six historic-period sites will be assigned primary numbers by the SCIC (pending). A description of the new finds follows.

Table 3: Newly Identified Cultural Resources Within Project Site

Resource Name (Temporary)	Trinomial Number	Date Recorded	Age	Description	Recommended Evaluation
21267-001	Pending	November 2, 2020	Historic	Single-story residence	Recommended not eligible
21267-002	Pending	November 2, 2020	Historic	House/pads; glass and ceramic scatter	Not Evaluated
21267-003 (Iso)	Pending	November 3, 2020	Historic	Green glass bottle base	Not Evaluated
21267-004	Pending	November 5, 2020	Multi-component	Glass bottle, sanitary and food can scatter	Not Evaluated

Table 3: Newly Identified Cultural Resources Within Project Site					
Resource Name (Temporary)	**Trinomial Number**	**Date Recorded**	**Age**	**Description**	**Recommended Evaluation**
21267-005	Pending	November 5, 2020	Multi-component	Historic glass bottle, sanitary and food can scatter; modern refuse	Not Evaluated
21267-006	Pending	November 5, 2020	Historic	Canals / water conveyance, part of irrigation district	Not Evaluated

21267-001

21267-001 is a historic farm/ranch complex, including a single-story house, numerous miscellaneous outbuildings, and a fenced area on the east side of the property. The farm/ranch is located at 5003 Best Road, Brawley, CA 92227, at the northwest corner of Best Road and Ward Road, which runs parallel to the east-west Livesley Drain. The complex is in the southeasternmost location within the Project site boundaries and is bordered to the north and northwest by agricultural fields. The complex is visible as early as 1945 on the USGS map and 1953 in aerial imagery (NETR Online 2020). The house and associated structures are still present. The building appears to correspond to typical minimal traditional style of form and construction, resting on a perimeter foundation of poorly consolidated concrete made with local materials. Wood joists are noted in the interior where exposed, suggesting a post-and-pier foundation for the floor of the building. The outline is a simple rectangle with a low, gabled roofline and minimal pitch. Roof eaves minimally extend, with boxed in soffits. The exterior is treated in stucco, using techniques typical of the period; tarpaper wrap, with wire mesh, a brown/scratch coat, and a finish coat. There are several wood-trimmed piercings for wood-cased double-sash windows. Cast-iron waste pipes are embedded into the exterior surface along one wall.

Several outbuildings are present, but their function remains unknown at this time. These are wood-framed and sided, and most are in a state of collapse or disrepair. Construction techniques and the greater fullness of the dimensions of the dimensional lumber suggest that these buildings are contemporaneous with the main residential building.

The 5003 Best Road residence was evaluated in March 2021 by Chambers Group based on the criteria for listing in the CRHR and was recommended not eligible (Appendix C).

21267-002

21267-002 is the location of a formerly standing historic-era residential house, consisting of one remaining outbuilding foundation, two cement slabs (likely driveways), and historic debris, which includes ceramics and glass bottle fragments. The remaining components of the house and associated features are located immediately adjacent to and west of Best Road and the Best Canal; this is also the eastern entrance from Best Road to the City of Brawley Wastewater Treatment Plant. The perimeter foundation is constructed from concrete and contains inserted lag-bolts to secure the sill-plate of the building. This feature is a requirement following the 1933 Long Beach earthquake and was promulgated into the California building code in the 1930s. The foundation measures 208 inches in length, 111 inches in width, and has a height

of approximately 37 inches. The two concrete slab measurements range from 21 to 40 feet in length, are both 16 feet in width, and have a height of 5 inches. The glass fragments were predominately nondiagnostic; however, the presence of a patinated manganese glass fragment and a hobbleskirt design of what appears to be a Georgia-green-colored Coca-Cola bottle are dated to roughly the 1880s to the 1950s (Toulouse 1971). Also observed were two Japanese blue on white porcelain ceramic fragments, likely from a saucer and a bowl or cup (Figure 5). The house and associated features are visible as early as 1945 on the USGS map and 1953 in aerial imagery and is no longer present on the 1974 USGS map but visible in aerial imagery until 2012 (NETR Online 2020).

21267-I-003

21267-I-003 is an isolated green glass bottle base with an Anchor-Hocking maker's mark dating to 1971 (Toulouse 1971). The glass base was located on the north side of a graded pad in a highly disturbed area, which is due to previous construction and continuous vehicle traffic around the irrigation systems and wastewater treatment plant. The isolate was likely redeposited when the pad and water basin were constructed sometime between 2010 and 2012. The isolated artifact could possibly have been separated from historic trash deposit site 21267-004, which is located 450 feet to the east/southeast.

21267-004

21267-004 is an overlapping deposit site with two distinct periods of deposition. An early deposit is evidenced by the presence of manganese-clarified glass, which has since taken on its characteristic purple color due to absorption of ultraviolet solar radiation. Bottle types appear to consist of pepper sauce and/or liniment types and exhibit characteristics of being manufactured before the complete adoption of the automatic bottle machine. This is evidenced by the presence of hand-applied and tooled finishes. This manufacturing feature roughly dates between 1880 and 1918 but is likely to date before 1903, at which time the automatic bottle machine was put into commercial production. The overlaying historic-period deposit consists of common consumer goods such as liquor bottles, a bimetallic beer can, a condensed milk can, an oval fillet can, and a possible quart oil can, along with a bundle of wire mesh fence material, a variety of shot casings, and two cobble hearth features. Identified bottle maker's marks include Latchford-Marble Glass that dates to between 1938 and 1956, an Owens-Illinois mark dated 1940, Gallo Flavor Guard dating between 1933 and 1964, and a Roma Wines mark dating between the 1950s and early 1970s (SHA 2021). A bimetallic beer can with pull tab opening dates to the early 1960s, and the matchstick filler condensed milk can measuring 2 $^{8}/_{16}$ inches by 2 $^{5}/_{16}$ inches corresponds to Simonis' type 20, which dates between 1950 and 1985 (Simonis 1997). Also present are a number of shot casings with headstamps relating to Activ, Remington, and Clever manufacturers. Activ Corporation of Kearneysville, West Virginia, produced a plastic hulled shell from the 1970s through the late 1990s. Clever has produced shot shells since 1952. Remington began manufacturing plastic shot shells in 1960, with Peters shells being produced in their characteristic blue color until the late 1960s (Standler 2006). Also noted in association with these deposits are two cobble hearth features with extant charcoal fragments. Based on this data it is suggested that the earlier component of the deposit may be related to railroad construction or maintenance, while the later component may be related to the expansion of post-war leisure time expansion and sport hunting activities.

21267-005

21267-005 is a historic-era site with deposits dating between the 1920s and the 1950s. The trash scatter consists of matchstick filler and sanitary cans, glass bottles and jars, 12- and 16-ounce beverage (beer)

cans, and a variety of unidentified burned fragments. The deposit is located west of railroad tracks, north of the proposed Project tie-line, on the bank along New River. The areas to the east and south of the site are disturbed by the installation of the aboveground water conveyance and the wastewater treatment plant. Identified items observed include a small pill bottle with screw-top finish, a bottle with a maker's mark suggesting a C in a circle design, perhaps representative of the Chattanooga Glass Company of Chattanooga, Tennessee, whose mark was used between approximately 1927 and 1988, a bottle fragment with an Owens-Illinois mark and date code of 1940, and a bottle base with Latchford-Marble Glass mark that dates to between 1938 and 1956. Also noted was a 12-ounce bimetallic beverage (beer) can dating between 1960 and 1975 and a 16-ounce all-metal beverage (beer) can that predates 1975, a church key-opened sanitary can that postdates 1935, and several matchstick filler condensed milk cans whose measurements are unclear at this time. In addition, several fragments of saw-cut bone, both bleached, and burned, were scattered throughout the deposit.

21267-006

21267-006 is a concrete, linear water conveyance element of the irrigation district. The irrigation system runs east-west along Andre Road between Hovley Road on the west to the wastewater facility tie-in on the east (west of Best Road).

The tie-line corridor is paralleled by the Spruce No. 3 Lateral and the Spruce No. 3 Drain. Both of these features of the early irrigation network course through the tie-line corridor. The Spruce 3 Lateral is supplied by the Smilax Lateral, which draws water from the north-south running Spruce Main Canal, which is supplied by the West Side Main Canal. As the Spruce 3 Lateral and Drain travel easterly along Andre Road, both alignments jog north-northeasterly approximately 16 meters (50 feet), midway between Hovley Road and State Route (Highway) 111, and continue their easterly trajectory, where Spruce 3 Lateral continues to supply lands to the north. Spruce 3 Drain terminates at the New River.

The Spruce line of irrigation canals, laterals, and drains was established by the Irrigation District Water Company No. 8 in the early 1900s. The alignments are noted on the Thurston map of 1914 and are indicated on a series of 7.5-minute USGS topographic quadrangles in the same format and arrangement.

The Spruce No. 3 Lateral is concrete-lined and controlled by a series of gates and turnouts (Figure 7). The main channel is composed of formed-in-place concrete with walls opened outward approximately 30 degrees from vertical. The width of the lateral is approximately 8 feet at the top, with a depth of approximately 4 feet. Approximately 0.5 mile east of Hovley Road the alignment of the lateral shifts north approximately 50 feet, with a turnout gate directing water underground, where it returns to the surface in the alignment to the north, continuing easterly towards Highway 111, where it undercrosses the roadway and continues to supply the fields to the north until it reaches the New River. Date stamps on turnouts and head gates indicate that these features were added between the middle 1950s to the middle 1970s. Turnout gate 75, located near North Western Avenue, is dated to 1956 as is the head gate, while the adjacent upstream underground culvert frame is dated to 1963. Turnout gate 76 is dated to 1974. The head gate near Hovley Road is a jack type with a ferrous rod and jack assembly controlling a wooden gate located in tracks inset into the concrete lateral. The jack rests on a wood crossbeam set atop concrete pillars that rest on the sidewall of either side of the lateral. All turnout gates appear to be nonferrous metal slide gates that are controlled by dowling pins inserted into the perforated gate post, with the dowling pin resting on two wood beams affixed to the concrete pillars straddling either side of the gate opening.

The Spruce No. 3 Drain parallels the No. 3 Lateral and is offset approximately 30 feet to the south. The No. 3 Drain, as with nearly all drains in the system, was designed and constructed with an eye toward utility and function. The alignment is directly cut into the ground with spoils used to create elevated roadways along the margins. Width of the drain varies but is roughly 30 feet wide, with sidewalls sloping approximately 30 degrees from vertical. The drain has been subject to continual routine maintenance activities since its initial construction, with removed sediments relocated on the roadbeds adjacent. Approximately 0.5 mile east of Hovley Road, the alignment of the drain shifts north approximately 50 feet, continues eastward, undercrossing Highway 111, and terminates at the New River, where excess water is drained.

While the irrigation network is considered an historic resource, individual elements such as laterals and drains are ubiquitous and often are a result of relining efforts to control water loss beginning in the 1950s, obliterating the original dirt canal systems. Similarly, drains are under constant maintenance and restructuring to maintain shape, form, and water flow through removal of vegetation and sediments (Shultz 2017). As such, both the Spruce No. 3 Lateral and the Spruce No. 3 Drain are not recommended eligible for inclusion on the NRHP or in the CRHR.

CA-IMP-8166H

CA-IMP-8166H is the Niland to Calexico Railroad, which was constructed between 1902 and 1904 by the Southern Pacific Company and runs 65 miles from Niland to Calexico. The resource was recorded in 2003 by Collins and Pflaum as a standard gauge track on a gravel base and is still in use today (Ehringer 2011).

A portion of the Niland to Calexico Railroad was revisited and updated as part of the current survey of the Project area, which is bisected by the railroad in a north-south direction, between an unnamed dirt road, west of Best Canal turn-out number 116 in the north, and the Livesley Drain in the south. Five undercrossing features were identified within the Project area crosspassing under the existing railroad line. These features are constructed of poured-in-place, board-formed concrete with head wall and wing-walls either side to form a revetment-style retainer for the track ballast; and areas are constructed of cement and mortar and allow feeder lines from Best Canal, which is to the east of the railroad, to supply water to the adjacent agricultural lands. The feeder line undercrossing construction dates range from 1928 to 1930 (Figure 6). The wall measurements range from approximately 36 to 96 inches in height and average between 8 to 12 inches in width. The dates of construction are stamped into the sides of the main walls.

Feature 1: Two parallel feeder lines are immediately south of the intersection of the railroad and an unnamed dirt road, west of Best Canal turn-out number 116. The undercrossings, both dating to 1930, with the southern line turning slightly southwesterly on the west side of the tracks, are located at the northern end of the Project area.

Feature 2: This is an undercrossing at the intersection of the railroad and an unnamed dirt road, west of Best Canal turn-out number 115, which dates to 1928.

Feature 3: This is an undercrossing at the intersection of the railroad and an unnamed dirt road, west of Best Canal turn-out number 114, which dates to 1930.

Feature 4: This is a southwesterly undercrossing offshoot stemming from and immediately south of the feeder line for Feature 3, which is west of Best Canal turn-out number 114 and dates to 1930.

Feature 5: This is the southernmost undercrossing at the intersection of the railroad and an unnamed dirt road, west of Best Canal turn-out number 110, which dates to 1930.

SECTION 6.0 – SUMMARY AND RECOMMENDATIONS

6.1 SUMMARY

Chambers Group conducted paleontological and archaeological investigations within the Project site in November 2020. The work was performed under Chambers Group's contract with Imperial County Planning and Development Services Department. The main goal of the investigations was to gather and analyze information needed to determine if the Project, as currently proposed, would impact paleontological and cultural resources.

The SDNHM determined that the proposed Project has the potential to impact late Pleistocene to Holocene-age Lake Cahuilla Beds. Eight recorded fossil localities have been identified within a 1-mile radius of the Project site with none being located inside the Project area.

Archival record searches, background studies, and an intensive pedestrian survey of the Project site were conducted as part of a Phase I cultural resource study. The cultural record search identified nine cultural resource studies and one archaeological resource within the Project site.

The survey yielded six new historic-period and multi-component resources (21267-001, 21267-002, 21267-I-003, 21267-004, 21267-005, and 21267-006) within the Project site; a segment of the previously recorded resource, CA-IMP-8166H, was relocated and updated. One of the two farmhouses and associated structures, 21267-001, is still standing and has been evaluated for CRHR eligibility and has been recommended not eligible; what remains of the other, 21267-002, comprises a foundation, two cement slabs, and a small glass and ceramic scatter. Isolate 21267-I-003, a single green glass bottle base, was likely redeposited during the construction of the graded pad and retention basin southeast of the City of Brawley Wastewater Treatment Plant, possibly stemming from one of the two historic scatters which are located in relatively close proximity. Site 21267-004 is multi-component with a small glass and can scatter dating to the 1930s as well as 1970s and is located immediately west of the Niland to Calexico Railroad (CA-IMP-8166H) at the south end of the Project area. Site 21267-005 is multi-component with the first trash scatter dating from the early to mid-1950s and the second dating from the last deposition date through the present. Sites 21267-004 and 21267-005 were likely deposited during the construction of the railroad, water treatment plant, and irrigation system and "revisited" during the following decades during maintenance or upkeep. The segment of CA-IMP-8166H, the Niland to Calexico Railroad, which bisects the two adjacent Project areas from north to south, was revisited and relocated; updates were made to the resource by recording five cement and mortar undercrossing feeder lines from Best Canal dating to 1928 and 1930.

6.2 RECOMMENDATIONS

6.2.1 Paleontological

Prior to construction activity, a Qualified Paleontologist should prepare a Paleontological Resource Mitigation Plan (PRMP) to be implemented during ground-disturbance activity for the proposed Project. This program should outline the procedures for paleontological monitoring including extent and duration, protocols for salvage and preparation of fossils, and the requirements for a final mitigation and monitoring report. A qualified and trained paleontological monitor will be present on site to observe all earth-disturbing activities in previously undisturbed geologic deposits determined to have a high paleontological sensitivity (i.e., Lake Cahuilla Beds). Monitoring will consist of the visual inspection of excavated or graded

areas and trench sidewalls. Screening of sedimentary matrix should be conducted as some invertebrates may not be visible to the naked eye.

The site does have paleontological sensitivity, with high potential for paleontological resource discovery; therefore, it is recommended that a qualified paleontologist is retained and is on site for construction monitoring. These requirements are outlined in the proposed mitigation measures below.

6.2.2 Cultural

The records search and archaeological survey resulted in the identification of 12 resources within 1 mile of the Project site. Six new sites were identified and recorded within the Project site during the survey. One of the previously recorded resources identified in close proximity to the Project site during the records search bisects two adjacent Project areas and was relocated; this record will also be updated.

Based on the background research and results of the survey, it is not recommended that any further archaeological testing or evaluation occur, apart from resource 21267-001 which was evaluated in March 2021 by Chambers Group, for any of the above listed archaeological sites prior to construction.

Prior to permitting ground-disturbing work within the Project site, it is recommended that the County consult with the Viejas Band of Kumeyaay Indians, per their request for involvement during monitoring efforts for all ground-disturbing activities, to identify any concerns they may have regarding the Project. The San Pasqual Band of Mission Indians also requested to be notified of any discoveries located during the survey, which will determine their level of involvement. No significant impacts to cultural or paleontological resources are anticipated as a result of the current undertaking if the recommendations included below are implemented.

MM PALEO-1 Once a geotechnical report has been completed for the project, a qualified paleontologist shall review the boring logs and determine how deep paleontologically sensitive formations may be across the project site. The paleontologist shall use this information along with the results of the paleontological survey to determine if paleontological monitoring is warranted. If monitoring IS warranted, a qualified paleontologist shall prepare a mitigation and monitoring plan to be implemented during project construction.

For any areas identified as likely to impact paleontologically sensitive MM PALEO 2-6 shall be followed.

MM PALEO-2 Developer shall retain the services of a Qualified Paleontologist and require that all initial ground-disturbing work be monitored by someone trained in fossil identification in monitoring contexts. The Consultant shall provide a Supervising Paleontological Specialist and a Paleontological Monitor present at the Project construction phase kickoff meeting.

Timing/Implementation: Prior to construction. Enforcement/Monitoring: Imperial County Department of Planning and Development Services

MM PALEO-3 Prior to commencing construction activities and thus prior to any ground disturbance in the proposed Project site, the Supervising Paleontological Resources Specialist and Paleontological Resources Monitor shall conduct initial Worker Environmental Awareness Program (WEAP) training to all construction personnel, including supervisors, present at

the outset of the Project construction work phase, for which the Lead Contractor and all subcontractors shall make their personnel available. This WEAP training will educate construction personnel on how to work with the monitor(s) to identify and minimize impacts to paleontological resources and maintain environmental compliance and be performed periodically for new personnel coming on to the Project as needed.

Timing/Implementation: Prior to construction. Enforcement/Monitoring: Qualified Paleontologist and Imperial County Department of Planning and Development Services

MM PALEO-4 The Contractor shall provide the Supervising Paleontological Resources Specialist with a schedule of initial potential ground-disturbing activities. A minimum of 48 hours will be provided to the Consultant of commencement of any initial ground-disturbing activities such as vegetation grubbing or clearing, grading, trenching, or mass excavation.

As detailed in the schedule provided, a Paleontological Monitor shall be present on site at the commencement of ground-disturbing activities related to the Project. The monitor, in consultation with the Supervising Paleontologist, shall observe initial ground-disturbing activities and, as they proceed, make adjustments to the number of monitors as needed to provide adequate observation and oversight. All monitors will have stop-work authority to allow for recordation and evaluation of finds during construction. The monitor will maintain a daily record of observations to serve as an ongoing reference resource and to provide a resource for final reporting upon completion of the Project.

The Supervising Paleontologist, Paleontological Monitor, and the Lead Contractor and subcontractors shall maintain a line of communication regarding schedule and activity such that the monitor is aware of all ground-disturbing activities in advance in order to provide appropriate oversight.

Timing/Implementation: During construction. Enforcement/Monitoring: Qualified Paleontologist and Imperial County Department of Planning and Development Services

MM PALEO-5 If paleontological resources are discovered, construction shall be halted within 50 feet of any paleontological finds and shall not resume until a Qualified Paleontologist can determine the significance of the find and/or the find has been fully investigated, documented, and cleared.

Timing/Implementation: During construction. Enforcement/Monitoring: Qualified Paleontologist and Imperial County Department of Planning and Development Services

MM PALEO-6 At the completion of all ground-disturbing activities, the Consultant shall prepare a Paleontological Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all paleontological finds.

Timing/Implementation: Post construction. Enforcement/Monitoring: Qualified Paleontologist and Imperial County Department of Planning and Development Services

MM CUL-1 Developer shall retain the services of a Qualified Archaeologist and require that all initial ground-disturbing work be monitored by someone trained in artifact and feature

identification in monitoring contexts. The Consultant shall provide a Supervising Archaeological Specialist and a Paleontological Monitor present at the Project construction phase kickoff meeting.

Timing/Implementation: Prior to construction. Enforcement/Monitoring: Imperial County Department of Planning and Development Services

MM CUL-2 Prior to commencing construction activities and thus prior to any ground disturbance in the proposed Project site, the supervising Archaeological Resources Specialist and Archaeological Resources Monitor shall conduct initial Worker Environmental Awareness Program (WEAP) training to all construction personnel, including supervisors, present at the outset of the Project construction work phase, for which the Lead Contractor and all subcontractors shall make their personnel available. This WEAP training will educate construction personnel on how to work with the monitor(s) to identify and minimize impacts to paleontological resources and maintain environmental compliance and be performed periodically for new personnel coming on to the Project as needed.

Timing/Implementation: Prior to construction. Enforcement/Monitoring: Qualified Archaeologist and Imperial County Department of Planning and Development Services

MM CUL-3 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.

Timing/Implementation: During construction. Enforcement/Monitoring: Qualified Archaeologist and Imperial County Department of Planning and Development Services

MM CUL-4 The Contractor shall provide the Supervising Archaeological Resources Specialist with a schedule of initial potential ground-disturbing activities. A minimum of 48 hours will be provided to the Consultant of commencement of any initial ground-disturbing activities such as vegetation grubbing or clearing, grading, trenching, or mass excavation.

As detailed in the schedule provided, an Archaeological Monitor shall be present on site at the commencement of ground-disturbing activities related to the Project. The monitor, in consultation with the Supervising Archaeologist, shall observe initial ground-disturbing activities and, as they proceed, make adjustments to the number of monitors as needed to provide adequate observation and oversight. All monitors will have stop-work

authority to allow for recordation and evaluation of finds during construction. The monitor will maintain a daily record of observations to serve as an ongoing reference resource and to provide a resource for final reporting upon completion of the Project.

The Supervising Archaeologist, Archaeological Monitor, and the Lead Contractor and subcontractors shall maintain a line of communication regarding schedule and activity such that the monitor is aware of all ground-disturbing activities in advance in order to provide appropriate oversight.

Timing/Implementation: During construction. Enforcement/Monitoring: Qualified Archaeologist and Imperial County Department of Planning and Development Services

MM-CUL-5 If archaeological resources are discovered, construction shall be halted within 50 feet of the find and shall not resume until a Qualified Archaeologist can determine the significance of the find and/or the find has been fully investigated, documented, and cleared.

Timing/Implementation: During construction. Enforcement/Monitoring: Qualified Archaeologist and Imperial County Department of Planning and Development Services

MM-CUL-6 At the completion of all ground-disturbing activities, the Consultant shall prepare an Archaeological Resources Monitoring Report summarizing all monitoring efforts and observations, as performed, and any and all prehistoric or historic archaeological finds as well as providing follow-up reports of any finds to the South Coastal Information Center (SCIC), as required.

Timing/Implementation: During construction. Enforcement/Monitoring: Qualified Archaeologist and Imperial County Department of Planning and Development Services

HUMAN REMAINS – LEGAL REQUIREMENTS In the unlikely event that human remains are discovered during ground-disturbing activities, then the proposed Project would be subject to California Health and Safety Code 7050.5, CEQA Section 15064.5, and California Public Resources Code Section 5097.98 (NPS 1983).If human remains are found during ground-disturbing activities, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Imperial County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the Imperial County Coroner shall be notified immediately. If the human remains are determined to be prehistoric, the County Coroner shall notify the NAHC, which shall notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials (NPS 1983).

SECTION 7.0 – SITE PHOTOGRAPHS

Figure 2: Gastropods & bivalves within silty clays of possible Lake Cahuilla lacustrine sediment, facing north/overview.

Figure 3: Possible exposure of Lake Cahuilla lacustrine, facing north.

Figure 4: Survey area west of Best Road, facing north.

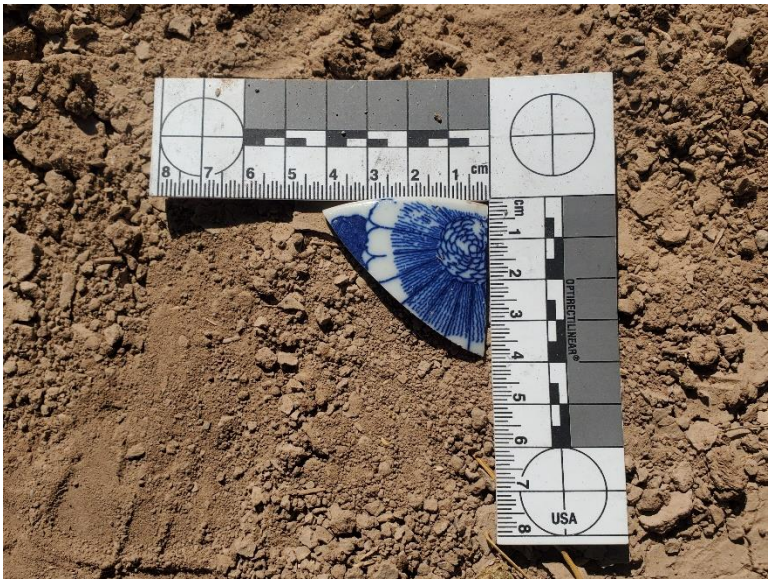


Figure 5: Historic Japanese blue on white porcelain ceramic fragment located near structure foundation at 21267-002.

Figure 6: Overview of Niland to Calexico Railroad and culvert undercrossing dated to 1930 at north end of Project area, facing southwest.

Figure 7: Overview of Spruce No. 3 Lateral, showing construction dates of 1956 and 1963, facing west/southwest. Located at the southeast corner of Hovley Road and Andre Road.

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APPENDIX A – CONFIDENTIAL CULTURAL RECORDS SEARCH RESULTS

APPENDIX B – CONFIDENTIAL DPR SERIES 523 FORMS

APPENDIX C – 5003 BEST ROAD EVALUATION

5003 Best Road Residence CRHR Evaluation
Temporary resource number: 21267-001 (Trinomial pending)
Kellie Kandybowicz
Cultural Resource Specialist, Chambers Group Inc.
March 18, 2021

During the Phase I pedestrian survey for the Brawley Solar Project in November 2020, the historic-era farm/ranch complex at 5003 Best Road was encountered within Project boundaries. The vacant residence was evaluated in March 2021 to determine if its removal during project development would contribute to any adverse effects and significant impacts as a cultural resource. The resource assessment was conducted in compliance with the California Environmental Quality Act (CEQA) and evaluated under the criteria of the California Register of Historic Resources (CRHR; OHP 2021).

California Register of Historic Resources

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing on the CRHR. The CRHR was designed to be used by state and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for inclusion in the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

Historical Context

Imperial County was formed in 1907 from a portion of San Diego County known as Imperial Valley and is the newest of California's counties. It is known for being one of California's most prosperous agricultural communities because of its vast canal systems stemming from the Colorado River. The first diversion of the Colorado River was in 1905 and continued through 1942 when the All-American Canal was completed. It is this water, conveyed from the Colorado River, that makes Imperial County so rich (Hoover et al. 2002).

As the Imperial Valley was starting to develop, a circular was released by the U.S. Government in 1902 claiming nothing would grow in this desert area, even with plentiful water. A man named J.H. Braly from Los Angeles had underwritten shares of water stock and was assigned 4,000 acres of land at the center of the site where Brawley now stands. George E. Carter, who was building the grade for the new railroad, heard of Braly's wish to be released from his bargain, as he envisioned the city as a potential failure, and took over Braly's contract for the 4000 acres. The Imperial Land Company got wind of the deal and sent

emissaries to buy out Carter. The company ordered the new town platted in October of 1902 (City of Brawley 2020).

Brawley was eventually incorporated in 1908 and was a “tent city” of only 100 persons who were involved in railroads and the earliest introduction of agriculture. It had a population of 11,922 in 1950, had growth that was slow from the 1960s to the early 1990s, and as of 2019, Brawley’s population is 26,000. Although the town has grown substantially, for more than a century, Brawley has remained close to its roots of being an agricultural-driven community (City of Brawley 2020).

5003 Best Road Residence

The farm/ranch complex is located at 5003 Best Road, Brawley, CA 92227, at the northwest corner of Best Road and Ward Road, which runs parallel to the east-west Livesley Drain and is bordered to the north and northwest by agricultural fields. The complex is within U.S. Geological Survey (USGS) *Westmorland East*, California, 7.5-minute topographic quadrangle, Township 13 South, Range 14 East, in tract 120 and APN number 037-140-006. The property is located within the Imperial Irrigation District.

In 1908, the property on which the farm/ranch complex is located was surveyed for sale to Ms. Myrta Livesley and on April 19, 1911 a patent (No. 189395) was recorded by the General Land Office in Los Angeles, California for claimants Edward J. Standlee, Thomas A. Livesley, and William E. Miller (USDI 2021). No additional documentation was located on the early development and residents of the property or the construction of the farm/ranch structures, which includes a single-story house, numerous miscellaneous outbuildings, and a fenced area on the east side of the property. The residence is first visible on the 1945 USGS map and in 1953 aerial imagery (NETR 2020). Based on the construction style, the house was likely built circa 1935 (City of San Diego 2007).

Over the last 100 years, the land on which the complex was built has been sold multiple times. The original land title held by the aforementioned individuals, most notably Mr. Livesley, was developed for agricultural use. The property was eventually owned by the Flammang family, Loma Farms, and most recently by ORNI 19, LLC (County of Imperial 2021).

Thomas A. Livesley

Thomas A. Livesley was born to Samuel and Margaret Livesley of Wisconsin. His father was a prominent British hop grower. The sixth of ten siblings, he was born in 1863 in Ironton, Sauk County, Wisconsin during the middle of the Civil War. At the age of ten his father bought and moved the family to a ranch in nearby LaValle. In 1879, at 16 he was listed by the census as "laborer” and at 21 as a "carpenter.” Thomas is said to have traveled west with John Morrison in 1885 and was one of the “two Livesley boys." It is known that in 1889 Tom was a butcher at the same Seattle address as his brother George who was a grocer. In 1890 he was part of “Livesley Brothers" hop dealers with siblings Robert and George (Bush 2000).

In February 1890, Tom married Myrta Emeline Hubbell in Seattle. She was the daughter of prominent LaValle farmer and Judge Wellington Hubbell who had also moved to Seattle. They did not have any children and were divorced in 1903 (Bush 2000).

In the early 1900s, Thomas spent time in California, where he was in the grapefruit business, as well as having a melon ranch. He met his second wife Edna DeBeck in San Francisco who was Canadian and had attended Mills College in Oakland where she studied nursing. They were married in Vancouver, BC in September 1908. The Livesleys bought several hundred acres and began to grow cantaloupes, that were

sold though Hiram Wood and his company The Woods Company. It is recorded that Thomas purchased land in what would become the City of Brawley from 1908 to 1911, including the property on which the 5003 Best Road farm/ranch complex was constructed. In 1908, Thomas founded his hop business "T.A. Livesley and Co." with his partner and friend Jack Roberts. Mr. Roberts was involved until 1924 when they amicably dissolved their partnership and Thomas became sole owner. It is unknown if Thomas ever resided in Brawley or just held land patents for agricultural use. At an unknown date, likely after initial construction, the drain immediately south of the 5003 Best Road property was named the Livesley Drain (Bush 2000).

At an unknown date between 1911 and 1927, Thomas and his wife moved to Salem, Oregon. Between 1910 and 1921 the couple had four children. Thomas was a busy man who had many resources and businesses and by 1924 became known as the "Hop King" because he was the largest grower of hops in Oregon. He also served as Vice President of Oregon Linen Mills. In 1927, Tom commissioned the Livesley Tower, an 11-story office building in downtown Salem. Space in this building was managed and leased by the Livesleys until its sale in 1960. The Livesleys had a mansion built which was designed by Ellis F. Lawrence, the founder of the University of Oregon School of Architecture; this house would later be sold n 1988 to the state to become the Governor's Mansion (Bush 2000).

Thomas was elected as Mayor of Salem, Oregon and served from 1927 to 1931. His mayorship was marked by much improvement, noticeably moving Salem toward a council-manager form of government, replacing many of the town's wooden bridges with concrete ones, construction of the Salem Airport, and the installation of streetlights. He was adamant that these changes be made with concern for the beauty of the city. He was known as the "Good Roads" mayor. He later served as Marion County State Representative from 1937 to 1939 (Bush 2000).

Thomas lived a full and successful life and passed away in Salem of skin cancer in July of 1947, at the age of 84 (Bush 2000).

Change of Title

At an unknown date, the 5003 Best Road property was sold by the Livesley family. In 1976, based on Permit 14097, ownership of the property was held by Joe Flammang (County of Imperial 2021). In 1980, a grant of all minerals, gases, and water in a portion of the west half of the south half of Tract 120 was divided between Dennis Flammang, Joseph Flammang, Paula Ann McCormick, and Mary Dee Flammang (Stewart Title of California 2006).

Joseph Flamming, one of the Flamming children, was born in Brawley in 1946 to parents John and Lois. In 1962, Mr. and Mrs. Flammang started a farm family business. Joseph grew up and attended school in Brawley and later attended Cal Poly in Pomona, California. After college, he traveled to Iran on a farming project for the Iran California Company. He farmed in Brawley, starting John Flammang Farms in 1998, and in later years was a substitute high school teacher. There is minimal information available on Joseph's siblings aside from their property ownership. Joseph passed away on February 22, 2018 (Legacy 2021).

In 1988, based on Permit 28722, the property owners were Loma Farms, Inc., a California corporation owned by John Flamming. In 2008, a geothermal lease was executed by the Flammangs and McCormick with ORNI 17, LLC as the lessor. Based on the County of Imperial's Assessor the land was most recently sold to ORNI 19, LLC in 2009 who plan to construct a solar energy field (Stewart Title of California 2006).

Residence Construction

The main residential building appears to correspond to typical Minimal Traditional style of form and construction, which dates range from 1935 to 1955, and is resting on a perimeter foundation of poorly consolidated concrete made with local materials (City of San Diego 2007). Wood joists are noted in the interior where exposed, suggesting a post-and-pier foundation for the floor of the building. The outline is a simple rectangle with a low, gabled roofline and minimal pitch. Roof eaves minimally extend, with boxed in soffits. The exterior is treated in stucco, using techniques typical of the period; tarpaper wrap, with wire mesh, a brown/scratch coat, and a finish coat. There are several wood-trimmed piercings for wood-cased double-sash windows. Cast-iron waste pipes are embedded into the exterior surface along one wall.

Several outbuildings are present, but their function remains unknown at this time. These are wood-framed and sided, and most are in a state of collapse or disrepair. Construction techniques and the greater fullness of the dimensions of the dimensional lumber suggest that these buildings are contemporaneous with the main residential building. The house and associated structures are still present. There are many mature trees lining the eastern and northern perimeters.

Evaluation Recommendation

Based on the evaluation of the residence, either as a complex or as individual structures, none of the four criteria are met for inclusion in the CRHR and the resource is recommended not eligible (OHP 2021).

Criterion 1: This resource does not meet the criteria under Criterion 1 as it is not associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States. Therefore, this resource is recommended not eligible for the CRHR under Criterion 1.

Criterion 2: This resource does not meet Criterion 2 as it is not associated with the lives of persons who are important to local, California history. While research has yielded information to suggest that one of the original land patent holders, Thomas A. Livesley, was fairly prominent in Salem, Oregon, neither he nor his family, or those also listed on the 1911 land patent, were specifically associated with Brawley or Imperial Valley, California history. There is no evidence that Mr. Livesley or his family ever resided at 5003 Best Road and were not mentioned as being influential in literature regarding the Imperial Irrigation District between the 1900s and 1940s or the history of Imperial Valley between the 1900s and 1930s (Dowd 1956; Tout 1931). It is likely that Mr. Livesley and the other parties listed on the land patent were involved in speculative agriculture but were not personally invested in the overall development of Brawley or within Imperial Valley.

Additionally, there is no evidence that the subsequent property titles holders, namely the Flammangs, were of particular significance in Brawley. The Flammangs were owners of a few farms over the decades, but there is no documentation stating any noteworthy influence in Brawley, Imperial Valley, or California. Therefore, this resource is recommended not eligible for the CRHR Criterion 2.

Criterion 3: This resource does not meet Criterion 3 for embodying the distinctive characteristics of a type, period, or method of construction; or as a representative work of a master; or for possessing high artistic values. represent a very common property type throughout the United States, California, and San Diego. Many Traditional Style residences were constructed throughout the United States during the twentieth century and these examples are neither unique nor innovative for the period in which they were constructed. Therefore, this resource is recommended not eligible for the CRHR under Criterion 3.

Criterion 4: This resource does not meet Criterion 4 since it is unlikely to yield information important to prehistory or history. It is unlikely that this property has the potential to broaden our understanding of the history of the United States, California, or San Diego during the twentieth century. Therefore, this resource is recommended not eligible for the CRHR under Criterion 4.

Photos

Figure 1: Main residence, facing northwest

Figure 2: Fenced lot east of main residence, facing northeast towards Best Road

Figure 3: Main residence and outbuilding, facing southeast

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February 8, 2021

Alissa Sanchez
Ormat Nevada, Inc.
801 Main Street
Centro, CA 92243

Subject: Geotechnical Feasibility Study Applicability

Dear Ms. Sanchez,

Petra Geosciences, Inc. prepared a Geologic/Geotechnical Feasibility Study for the Brawley Solar Project (proposed Project) on February 3, 2011. This study analyzed the Project Site in its entirety.

On February 3, 2021, Chambers Group reached out to Alan Pace, one of the prepares of the original feasibility study to confirm that the findings in the previously prepared report have not meaningfully changed. Mr. Pace responded with: "Petra conducted a feasibility-level investigation for the Brawley Solar Facility project. Petra Job No. 320-10 dated February 3rd, 2011. The conditions noted in the 2011 study have not significantly changed since the preparation of this email."

Based on geological conditions and confirmation from Petra Geosciences, the February 3, 2011 Geologic/Geotechnical Feasibility Study would still apply to the proposed Project and could and should be used during CEQA compliance to describe the existing conditions and potential impacts from the Project to the environment specific to geology and soils.

If you have any questions, please do not hesitate to contact Project Manager, Victoria Boyd at (760) 685-4838 or vboyd@chambersgroupinc.com.

Sincerely,

CHAMBERS GROUP, INC.

Victoria Boyd

Victoria Boyd
Project Manager

Riverside County

38655 Sky Canyon Drive, Suite A
Murrieta, California 92563
951-600-9271

PETRA

past + present + future
it's in our science

Engineers, Geologists
Environmental Scientists

February 3, 2011
J.N. 320-10

Mrs. Charlene Wardlow
ORMAT
6225 Neil Road
Reno Nevada, 89511

Subject: **Geologic/Geotechnical Feasibility Study; Brawley 190-Acre Photovoltaic Site, Located Approximately 2 ½ miles Northwest of the City of Brawley, Imperial County, California**

Dear Mrs. Wardlow;

Petra Geotechnical, Inc. (Petra) is pleased to submit this geologic/geotechnical feasibility report for the subject photovoltaic (PV) site located at the northwest corner of Best and Ward Roads in the Brawley area of Imperial County, California. Figure 1 depicts the site location with respect to the surrounding area. As we understand, the proposed development will consist of a solar farm and associated improvements such as access roads and maintenance buildings. In addition to the solar farm, the ultimate development is understood to include six geothermal wells and appurtenant facilities. The purpose of this study is to obtain available geotechnical and geologic information on the nature of the current soil conditions and to evaluate the potential geologic hazards or constraints that may impact the development of the subject property, specifically with respect to the PV solar farm. Geotechnical and geologic issues pertaining to the development of the geothermal wells and facilities will be addressed in a separate report.

This report presents the findings and opinions regarding the feasibility of the proposed project with respect to the geologic and geotechnical factors that may impact site development. This report is based on review of available geologic maps and data, site reconnaissance, and drilling and sampling of near surface soils for preliminary laboratory testing. This work was performed in accordance with our Proposal No. 1260-10, dated August 5, 2010.

LOCATION AND SITE DESCRIPTION

The subject site consists of approximately 190 acres within the northern part of the Imperial Valley, Imperial County, California, approximately 2.5 miles north of the town of Brawley (see Figure 1). The project site is

accessed by a dirt road in the central portion of the site, adjacent to Best Road. This road is also currently utilized for access to the waste water treatment plant to the southwest. The property is bounded by the paved Best Road to the east, by the unpaved Ward Road and an active drainage channel to the south, by another active drainage channel to the north, and by several ponds related to an existing waste water treatment plant to the west. The western property boundary is delineated by an approximately 20- to 30-foot high natural slope that descends to the treatment ponds. The New River is also located just west of the property. Vacant farmed property is generally located to the south, east and north. During our site investigation, a contractor was observed constructing pipelines in the southern portion of the site.

The topography of the site is nearly level to very gently sloping to the south-southwest at an approximate elevation of 140 to 150 feet below mean sea level (msl). The surface of the majority of the site is currently in a farmed/tilled condition; however some areas are also covered with a light to heavy growth of brush and several stands of small trees. Notable improvements with the property included several abandoned buildings in the southeast corner of the site and along the eastern property line near the center of the site. Although not observed, underground storage tanks may also be present in the vicinity of these structures. A north-south trending Pacific Railroad easement bisects the central portion of the property. Existing above-ground steel pipelines are located just east of the rail lines and near the eastern property line in the southeast quadrant of the site. Several dirt paths and abandoned concrete-lined irrigation V-ditches are also located throughout the site. Overhead electric/utility poles are present along the eastern and northern property lines. The irrigation channel along the southern property line is unlined, however the channel along the northern properly line is concrete-lined and eventually drains into an underground culvert-type structure located near the property line several hundred feet south of the northwest property corner.

FIELD EXPLORATION AND LABORATORY TESTING

Our site reconnaissance and subsurface exploration program was performed under the direction of an engineering geologist from Petra on December 2, 2010. The exploration involved the excavation of four 8-inch diameter exploratory hollow-stem auger borings to a maximum depth of approximately 51.5 below existing grade (Borings B-1 through B-4). Earth materials encountered within the exploratory borings were classified and logged by an engineering geologist in accordance with the visual-manual procedures of the Unified Soil Classification System. The approximate locations of the exploratory borings are shown on Figure 2 and descriptive logs are presented in Appendix A.

Disturbed bulk samples and relatively undisturbed ring samples of soil materials were collected for classification, laboratory testing and engineering analyses. Disturbed bulk samples were collected from the drill rig cuttings and sealed in plastic bags for transport to our in-house laboratory. Undisturbed samples were obtained using a 3-inch outside diameter modified California split-spoon soil sampler lined with brass rings. The soil sampler was driven with successive 30-inch drops of a free-fall, 140-pound automatic trip hammer. The central portions of the driven-core samples were placed in sealed containers and transported to our laboratory for testing. The number of blows required to drive the split-spoon sampler 18 inches into the soil were recorded for each 6-inch driving increment; however, the number of blows required to drive the sampler for the final 12 inches was noted in the boring logs (Appendix A) as *Blows per Foot.*

To provide a preliminary evaluation the engineering properties of the near surface soils underlying the subject site, select laboratory tests were performed on samples considered representative of the materials encountered. Preliminary laboratory tests included the determination of in-situ moisture content and dry density, expansion potential, soluble sulfate and chloride content, pH, and minimum resistivity. A description of laboratory test procedures and summaries of the test data are presented in Appendix B and the moisture/density test data is included on the borings logs in Appendix A.

FINDINGS

Regional Geology

The proposed solar farm site is located within northern portion of the Imperial Valley, which is part of the Salton Trough geomorphic province of California. The Salton Trough encompasses the Coachella, Imperial and Mexicali Valleys, which extend from northeast of Palm Springs near San Gorgonio Pass to the Gulf of California. The geologic structure of the trough is a result of extensional forces within the earth's crust. The Imperial Valley is bounded by the Chocolate Mountains to the northeast, the Salton Sea to the north, the Peninsular Ranges to the southwest, and Mexicali Valley to the south. Lacustrine and alluvial sediments are the dominant geologic units of the Imperial Valley. Unexposed succession of Tertiary- and Quaternary-aged sedimentary rocks lies below the alluvial and lake sediments ranging in depth from 11,000 feet or more at the margins to more than 20,000 feet in the central portion of the Salton Trough. Basement rocks consisting of Mesozoic granite and probably Paleozoic metamorphic rocks are estimated to exist at depths between 15,000 and 20,000 feet.

The watershed of the Salton Trough empties into the Salton Sea at the lowest part of the basin. This basin was

periodically filled with water to form the ancient Lake Cahuilla, depending on which side of its delta the Colorado River would drain. The sediments of the delta form a topographic high that separates the Salton basin, which is below sea level, from the Gulf of California.

Local Geology and Subsurface Conditions

The site is essentially within the floodplain of the New River and is generally underlain by Quaternary lake deposits. The western boundary of the site (descending slope) is the former bank of the New River. In addition a topsoil/tilled horizon and minor amounts of undocumented artificial fill were observed at the surface of the site and the soil units are discussed as follows.

Undocumented artificial fill on the site is related to the boundary roads and paths, the adjacent drainage channels, and the railway that bisects the site. The fill within these areas consists of local lean to fat clay derived from the native lake deposits, described below. The surface of the vast majority of the property is mantled by a 1-to 1.5-foot thick horizon of topsoil and/or tilled soil related to the previous agricultural usage. These soils are predominantly silts and clays.

Young lake deposits are the dominant geologic unit below the site. Based on the data obtained from the borings, the predominate soil types consist of silts and clays with occasional interbeds of silty sand.

Seismic Setting

The Salton Trough is a seismically active area and in particular within the Imperial Valley with numerous northwest-trending active faults. The closest active faults in proximity to the site include: the Brawley Seismic Zone, approximately 2.4 miles to the west; the Imperial fault, approximately 8.3 miles to the south; the Superstition Hills fault, approximately 11.9 miles to the southwest; the Superstition Mountain fault, approximately 14.5 miles to the southwest; the Elmore Ranch fault, approximately miles 15.8 to the west; and the San Andreas fault zone, approximately 25.5 miles to the northwest. An "active" fault is defined as a fault that has had displacement within the Holocene epoch, or last 11,000 years. A "potentially active" fault is a fault that does not have evidence of movement within the last 11,000 years, but has moved within the last 1.6 million years.

The site is not located within a *Fault Hazard Zone*, as defined by the state of California in the Alquist-Priolo Earthquake Fault Zoning Act and no faults are know to project through the project site.

Groundwater

Groundwater was encountered at approximately 42 feet below existing grade at B-1 in the western end of the site and perched groundwater was encountered at approximately 12 feet below grade at B-4 in the northeast corner of the site. In addition water is channeled within the drainage ditches/channels along the northern and southern property lines just below the surface elevation of the site.

GEOLOGIC HAZARDS

The following section discuses various potential geologic hazards with respect to the proposed 190-acre solar farm site. The issues addressed include fault ground rupture, strong seismic shaking, liquefaction and other earthquake-induced ground hazards, slope stability, subsidence and flooding.

Fault Rupture

The site is not located within a currently designated State of California Alquist-Priolo Earthquake Fault Zone (Hart, 1999). In addition, no known active faults have been identified on the site. While fault rupture would most likely occur along previously established fault traces, fault rupture could occur at other locations. However, the potential for active fault rupture at the site is considered to be very low

Seismic Shaking

The site is located within an active tectonic area with several significant faults capable of producing moderate to strong earthquakes. The Imperial fault, the Superstition Hills fault and the Superstition Mountain fault are all in close proximity of the site and capable of producing strong ground motions. Historically, the Imperial fault generated the 1979 and 1940 earthquakes and the Elmore Ranch fault generated the November 23, 1987 earthquake that is thought to have triggered the November 24, 1987 earthquake that occurred on the Superstition Hills and Wienert faults. Table 1 lists select recorded earthquakes felt at the site area.

Based on probabilistic analysis from the California Geological Survey web site, the peak ground acceleration at the site is estimated to be approximate 0.48g, based on a probability of 10 percent in 50 years.

TABLE 1
Significant Historic Earthquakes

Earthquake Events	Moment Magnitude (Mw)
El Mayor/Cucapah Mexicali (April 4, 2010)	7.2
Superstition Hills (Nov. 24, 1987)	6.6
Elmore Ranch (Nov. 23, 1987)	6.2
Mexicali (June 9, 1980)	6.1
Imperial Valley (Oct. 15, 1979)	6.4
Borrego Mountain (April 8, 1968)	6.5
Imperial Valley (May 18, 1940)	6.9
Laguna Salada (Feb. 23 1892)	7.0

Liquefaction Potential

Loosely compacted/deposited granular soils located below the water table can temporarily loose strength through the process of liquefaction during strong earthquake-induced ground shaking. When solid particles in a saturated soil consolidate into a tighter package as a result of vibration due to an earthquake, the non-compressible pore water between the particles will be squeezed out. If the soil has a high permeability, a sufficient amount of water will drain out of the pores to maintain inter-granular stresses and, thereby, the soil's shear strength. However, if the permeability is relatively low, then the water will not drain away quickly enough and pore water pressures will build as a result. If the pore water pressure rises to a level such that the shear strength of the soil becomes zero, then liquefaction is said to have occurred. Factors known to influence liquefaction potential include soil type and depth, grain size, relative density, ground-water level, degree of saturation, and both intensity and duration of ground shaking.

Based on our observations of site soils encountered during drilling the exploratory borings, the potential for liquefaction at the site is considered to be very low. This is based on the predominate types of soils encountered in the borings, fine-grained silts and clays, and the lack of a shallow groundwater table. However, additional analysis is warranted during the design level geotechnical investigation of the site to evaluate the

potential for differential settlement during a major seismic event.

Secondary Effects of Seismic Activity

Secondary effects of seismic activity normally considered as possible hazards to a site include several types of ground failure, as well as earthquake-induced flooding. Various general types of ground failures, which might occur as a consequence of severe ground shaking at the site, include landsliding, ground subsidence, ground lurching and lateral spreading. The probability of occurrence of each type of ground failure depends on the severity of the earthquake, distance from faults, topography, subsoils and groundwater conditions, in addition to other factors. Based on the site conditions and gentle to relatively flat topography across the majority of the site, landsliding, ground subsidence, ground lurching and lateral spreading are considered unlikely at the site.

Seismically induced flooding that might be considered a potential hazard to a site normally includes flooding due to tsunami or seiche (i.e., a wave-like oscillation of the surface of water in an enclosed basin that may be initiated by a strong earthquake) or failure of a major reservoir or retention structure upstream of the site. No major reservoir is located near, or upstream of the site so the potential for seiche or inundation is considered negligible. Because of the inland location of the site, flooding due to a tsunami is also considered negligible at the site.

Landslides and Slope Instability

No landslides exist within or near the site. Based on the relatively flat topography across the site and areas to the north, east and west of the site, the potential for landsliding is considered negligible. However there is a potential for general slope instability within the descending slope along the western boundary of the site. The southern portion of this slope appears to have been recently graded, however the northern portion appears to be natural and also in a somewhat over-steepened condition. In addition we observed some minor slumping within localized areas of this natural descending slope as well as several other areas that are heavily eroded. Based on the topography of the site, runoff water is allowed to freely drain over the top of this slope. A detailed site plan showing the existing topography was not available at the time of this study, however we tentatively estimate this slope to be approximately 20 to 30 feet in height.

Areal Subsidence

The site is not known to be located in an area with potential for ground subsidence due to withdrawal of fluids.

Flooding and Erosion

Sheet flooding and local erosion may be possible at this site. The site is mapped within Zone X by FEMA's Flood Insurance Rate Maps indicating the area has a low to moderate risk.

Expansive Soils

Expansive soils generally result from specific clay minerals that expand in volume when saturated and shrink in volume when dry. Expansive soils can severely impact the performance of slabs or structures with shallow foundations. Expansive soils are know to be present throughout the Imperial Valley and our preliminary laboratory testing encountered medium to highly expansive soils within the upper 5 feet of the project site.

Preliminary Soil Corrosivity Screening

As part of this investigation, a representative sample of near-surface soils was subjected to several screening tests in order to provide a general assessment of soil corrosivity. The results of these tests are provided in Appendix B.

The following sections of this report present our geotechnical engineering interpretation of current codes and specifications that are commonly used in our industry in conjunction with limited laboratory testing for corrosive potential. It should be noted that Petra Geotechnical, Inc. does not practice corrosion engineering; therefore, the opinions and engineering judgment provided herein should be considered as general guidelines only. It is recommended that the project design professional (i.e., the architect and/or structural engineer) consider retaining a qualified corrosion engineer to conduct additional sampling and testing of near-surface soils during the final stages of site grading to provide a complete assessment of soil corrosivity. Recommendations to mitigate the detrimental effects of corrosive soils on concrete and buried metallic building materials (such as copper and ductile iron) placed in contact with site soils should be provided by the corrosion engineer as deemed appropriate.

Soluble Sulfate and Soil pH - The results of our laboratory testing performed in accordance with California Test Method No. 417 indicate onsite near-surface soils contain a water-soluble sulfate content of 0.267 percent. According to Table 4.2.1 of the ACI 318-08, the soils are thus categorized as Exposure Class S2 with respect to soluble sulfates and, therefore, a **Severe** exposure to sulfates may be expected for concrete placed in contact with these soil materials.

Based on section 1904.3 of the 2010 CBC, concrete that will be exposed to sulfate-containing soils shall comply with the provisions of the American Concrete Institute (ACI) Standard 318-05, Section 4.3. According to Table 4.3.1 of the ACI 318-05, to reduce the potential for concrete deterioration, sulfate resistant cement should be used in all concrete that may be in contact with on-site soils. Further, careful control of the maximum water-cement ratio and the minimum concrete compressive strength is also necessary in order to provide proper resistance against deterioration due to sulfates.

For concrete that is expected to have a **Severe** exposure to sulfates, Table 4.3.1 of ACI Standard 318-05 indicates that Type V cement should be used, and that the maximum water-cement ratio should not exceed 0.45. In addition, the concrete compressive strength should not be less than 4,500 pounds per square inch.

Soluble Chloride - The results of tests performed in accordance with California Test Method No. 422 indicate that onsite soils contain water-soluble chloride concentrations on the order of 262 parts per million (ppm). According to Table 4.2.1 of the ACI 318-08, concrete that is exposed to moisture but not to external sources of chloride should be categorized as Exposure Class Low with respect to chlorides and, therefore, a Low exposure to chlorides may be expected for concrete placed in contact with the onsite soil materials.

Section 1904.4 of the 2010 CBC requires that reinforcement in concrete be protected from exposure to chlorides in accordance with Section 4.4 of ACI 318; however, Section 4.4 of ACI 318-08 is related to freeze-and-thaw conditions that are not applicable to the subject project. Therefore, no protection against chloride content is expected to be required. Further, according to Table 8.22.1 of Caltrans BDS no minimum concrete cover is specified when chloride concentration is less than 500 ppm.

Resistivity - The minimum soil resistivity was determined in accordance with California Test Method No. 643 and was found to be 120 ohm-cm. This result indicates that onsite soils are severely corrosive to ferrous metals and copper. As such, any ferrous metal or copper components of the proposed buildings within the site (such as cast iron pipes, ductile iron pipes, copper tubing, etc.) that are expected to be buried in direct contact with site soils need to be protected against the detrimental effects of severely corrosive soil materials.

CONCLUSIONS AND RECOMMENDATIONS

General Feasibility

Based on our preliminary assessment of potential geologic hazards and soil conditions, development of the subject property is considered feasible for a geotechnical standpoint. We recommend that a detailed geotechnical investigation be conducted when site plans are developed to prepare site specific grading and foundation recommendations that are appropriate for the proposed construction. However, there are several geologic/geotechnical issues that require consideration for the development of the proposed project and are discussed further below.

Slope Stability

Based current conditions of the existing descending slope along the western property boundary, there is a potential for slope instability. Based on the intended use of the site, grading of this slope is not considered cost effective or necessary. At this time we recommend that any permanent structural improvements near the top of slope along the western property line be tentatively setback by a 3:1 (horizontal: vertical) projection from the existing toe-of-slope. This would include the placement of geothermal wells. Non-permanent structures such as access roads and fencing would be permitted within this zone. Based on our observations we anticipate the slope to be on the order of 20 to 30 feet in height, therefore a 60- to 90-foot setback would be warranted. In addition we recommend that an earthen drainage berm be constructed along the top of this slope to prevent surface water from flowing over this slope and to channel any water towards the appropriate drainage facilities. We recommend that a more detailed slope stability analysis be performed during the subsequent design phase geotechnical investigation.

Liquefaction Potential

Although there is a very low potential for earthquake-induced liquefaction to affect the site, further evaluation and analysis is warranted during the design phase geotechnical investigation to confirm that no specialized foundation design is needed.

Aerial Subsidence

The general area is not experiencing subsidence that would typically be attributed to the extraction of groundwater. The solar farm is not expected to exacerbate or otherwise trigger significant subsidence. However, the operation of six geothermal wells throughout the site could potentially result in subsidence if large quantities of groundwater are extracted with a resulting lowering of the water table. Because the

specifics of the geothermal process and their impact on the groundwater levels are not a part of this study, the issue of potential subsidence related to the operation geothermal wells should be addressed.

Solar Panel Foundations

The soil conditions are such that the proposed solar panels may be supported on a variety of foundation systems. The near surface native soils were observed to consist primarily of clay and silt. Results of our laboratory testing indicate that near surface onsite soils exhibit an Expansion Index ranging from 72 to 102 (a medium to high expansion potential). These soils should thus be considered as "Expansive" per Section 1803.5.3 of the 2010 California Building Code (CBC).

The foundation system for the proposed solar panels is anticipated to consist of cast-in-drilled-hole (CIDH) concrete piles supporting steel pipe columns. Remedial grading is generally not required, as piles may be drilled to various depths to accommodate the vertical and lateral capacities needed. Test piles will be required to verify design vertical bearing capacities, both down-force and pullout, and lateral bearing capacity.

Other possible foundation systems could include conventional shallow spread footings and a variety of deep foundations, driven steel piles, and drilled helical anchors. Each of these foundation types has both merits and drawbacks with respect to ease and speed of installation, and cost.

More detailed geotechnical studies will be required to more fully evaluate the final foundation recommendations, or if other foundation options are considered.

Equipment Slabs

Portland Cement Concrete (PCC) slabs will be used for support of appurtenant structures, such as Inverter Transformers and PV Interconnection Switch Gear. Conventional spread footings or structural slabs are assumed for the support of these slabs. Due to the variable density of the near surface soils, an anticipated over-excavation that will provide a three-foot blanket of fill below proposed bottom of footing, extending laterally a minimum of five feet beyond the footprint of the slabs should be assumed. Localized regions may be encountered which require a deeper over-excavation. The excavated alluvial soils are anticipated to be suitable for use as compacted fill beneath the equipment slabs, provided any deleterious materials (vegetation, rocks in excess of 6 inches in largest dimension, etc.) are removed: however, if used, expansive soil will have to be considered in the foundation/slab design. Consideration should also be given to replacement of the slab

subgrade soils with select non-expansive materials.

Corrosive Soils

Results of our preliminary laboratory screening tests indicate that near surface onsite soils are considered severely corrosive to both concrete materials and metallic elements. Petra does not practice corrosion engineering; therefore a qualified corrosion specialist should be consulted to mitigate severely corrosive soils.

Strong Seismic Related Ground Motions

The site is located in a seismically active area of Southern California and will likely be subjected to very strong seismically-related ground shaking during the anticipated life span of the project. Structures within the site should therefore be designed and constructed to resist the effects of strong ground motion in accordance with the provisions of the 2010 CBC.

Conduit Trenches

We anticipate that the solar panels will be connected by buried conduit. Most of the alluvial deposits at the site should present little difficulty with regard to conduit installation, anticipated to be approximately 2 feet deep. On-site soils may be used as trench backfill. Due to the poor drainage characteristics of the soils, buried conduit may be subject to saturated conditions during the lifetime of the proposed solar facility. The thermal conductivity of the on-site soils and anticipated bedding materials should be evaluated in the design of the conduit trenches with respect to heat dissipation.

Flooding and Drainage

The potential for localized flooding may exist within the site. A detailed drainage study should be performed by the project civil engineer.

Additional Work

As previously stated, this study addresses the general feasibility of the proposed photovoltaic site with respect to geologic and geotechnical constraints. Additional studies are recommended to more thoroughly address specific aspects of the development, such as remedial grading and foundation design.

REPORT LIMITATIONS

This report is based on the existing condition of the subject property and the preliminary geologic/geotechnical field data as described herein. The materials encountered within the project site and utilized in our preliminary laboratory testing are believed representative of the total project area, and the conclusions and

recommendations contained in this report are presented on that basis. However, soils can vary in characteristics between points of exploration, both laterally and vertically, and those variations could affect the conclusions and recommendations contained herein. As stated, when site plans have been developed, additional subsurface investigation and geotechnical testing and analysis, will be necessary. This report has been prepared consistent with that level of care being provided by other professionals providing similar services at the same locale and in the same time period. The contents of this report are professional opinions and as such, are not to be considered a guaranty or warranty.

This report should be reviewed and updated after a period of one year or if the site ownership or project concept changes from that described herein. This report has not been prepared for use by parties or projects other than those named or described herein. This report may not contain sufficient information for other parties or other purposes.

We sincerely appreciate this opportunity to be of service. Please do not hesitate to call the undersigned if you have any questions regarding this report.

Respectfully submitted,

PETRA GEOTECHNICAL, INC.

Alan Pace
Associate Geologist
CEG 1952

Grayson R. Walker, GE
Principal Engineer
GE 871
2/3/11

REGISTERED PROFESSIONAL ENGINEER
GRAYSON R. WALKER
No. 871
EXP. 3-31-2011
GEOTECHNICAL
STATE OF CALIFORNIA

Attachments: References
Figure 1 – Site Location Map
Figure 2 – Exploration Location Map
Appendix A – Exploration Logs
Appendix B – Laboratory Test Data

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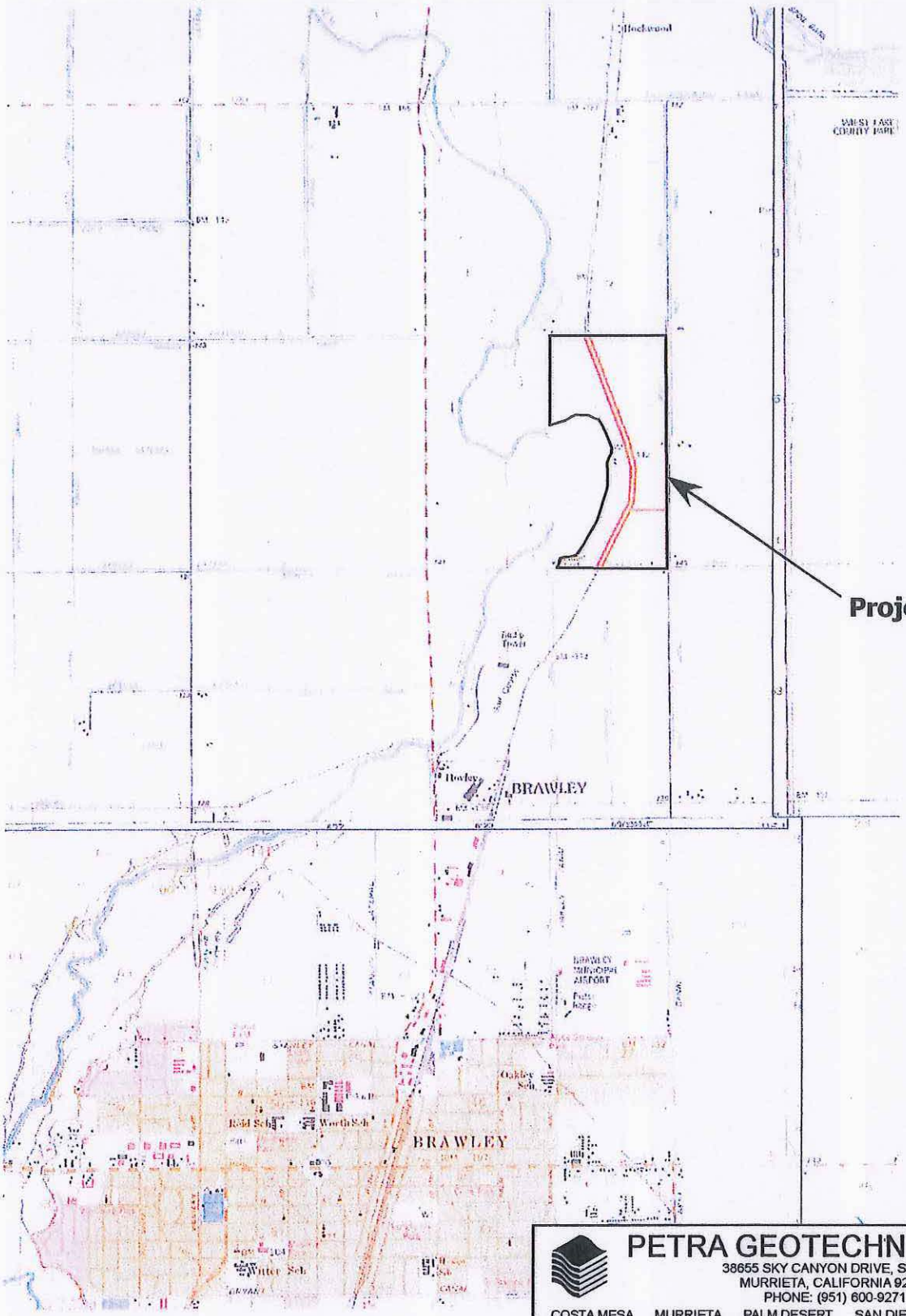

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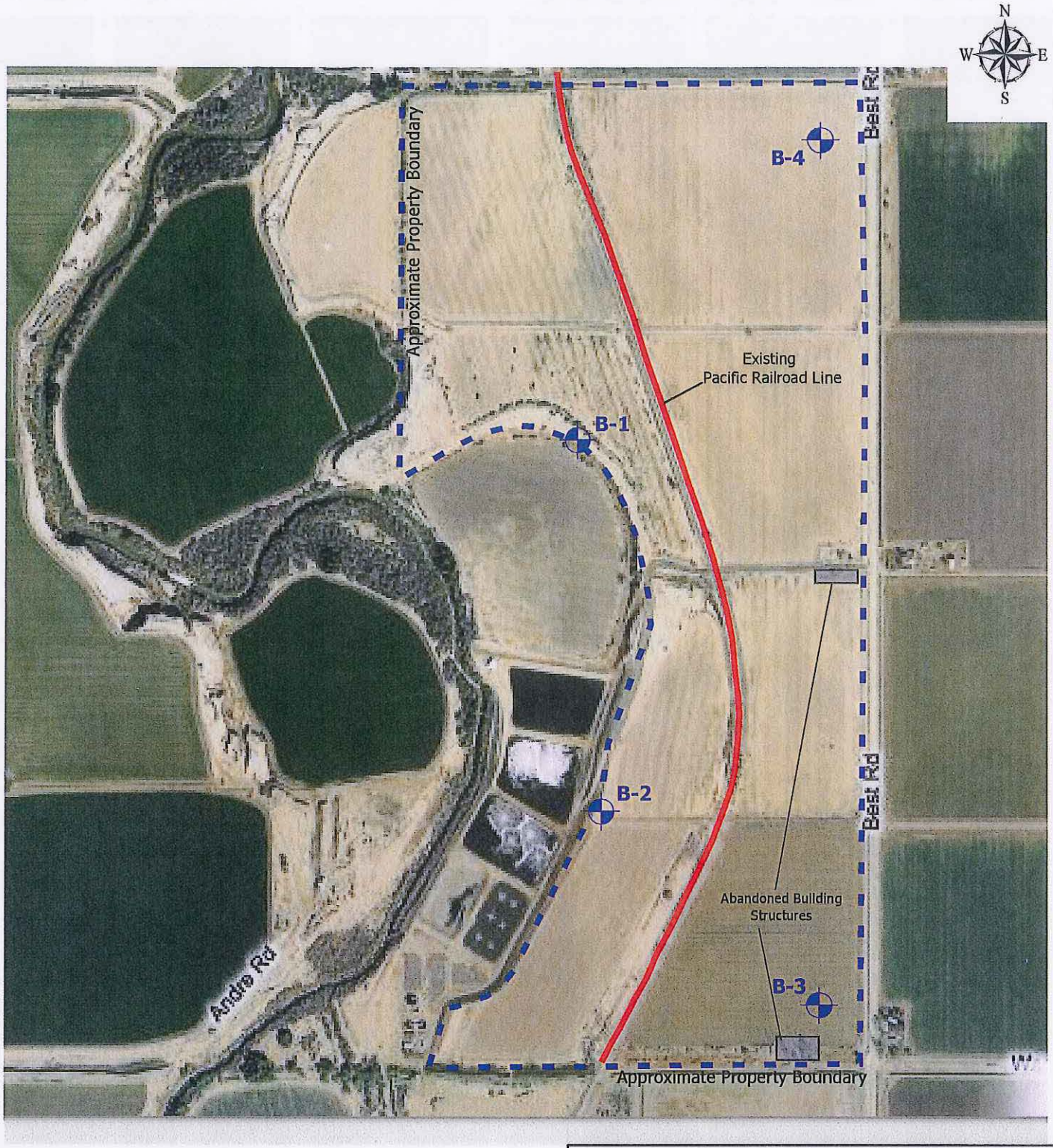
38655 SKY CANYON DRIVE, SUITE A
MURRIETA, CALIFORNIA 92563
PHONE: (951) 600-9271
COSTA MESA MURRIETA PALM DESERT SAN DIEGO SANTA CLARITA

SITE LOCATION MAP

Ormat Jimemz 190-Acre Site
Brawley Area
Imperial County, CA

DATE: Dec. 2010	J.N.: 320-10	Fig. 1
DWG BY: DLJ	SCALE: None	



B-4 Approximate Geotechnical Boring Location

PETRA GEOTECHNICAL, INC.
38655 SKY CANYON DRIVE, SUITE A
MURRIETA, CALIFORNIA 92563
PHONE: (951) 600-9271
COSTA MESA MURRIETA PALM DESERT SAN DIEGO SANTA CLARITA

EXPLORATION MAP

Ormat Jimemz 190-Acre Site
Brawley Area
Imperial County, CA

DATE: Dec. 2010	J.N.: 320-10	Fig. 2
DWG BY: DLJ	SCALE: None	

APPENDIX A

EXPLORATION LOGS

PETRA

Key to Soil and Bedrock Symbols and Terms

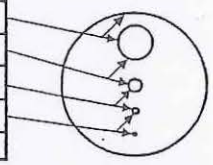
PETRA

Unified Soil Classification System

Coarse-grained Soils > 1/2 of materials is larger than #200 sieve	The No. 200 U.S. Standard Sieve is about the smallest particle visible to the naked eye	GRAVELS more than half of coarse fraction is larger than #4 sieve	Clean Gravels (less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
			Gravels with fines	GM	Silty Gravels, poorly-graded gravel-sand-silt mixtures
				GC	Clayey Gravels, poorly-graded gravel-sand-clay mixtures
		SANDS more than half of coarse fraction is smaller than #4 sieve	Clean Sands (less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
			Sands with fines	SM	Silty Sands, poorly-graded sand-gravel-silt mixtures
				SC	Clayey Sands, poorly-graded sand-gravel-clay mixtures
Fine-grained Soils > 1/2 of materials is smaller than #200 sieve		SILTS & CLAYS Liquid Limit Less Than 50		ML	Inorganic silts & very fine sands, silty or clayey fine sands, clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
				OL	Organic silts & clays of low plasticity
		SILTS & CLAYS Liquid Limit Greater Than 50		MH	Inorganic silts, micaceous or diatomaceous fine sand or silt
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic silts and clays of medium-to-high plasticity
Highly Organic Soils				PT	Peat, humus swamp soils with high organic content

Grain Size

Description		Sieve Size	Grain Size	Approximate Size
Boulders		>12"	>12"	Larger than basketball-sized
Cobbles		3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	coarse	3/4 - 3"	3/4 - 3"	Thumb-sized to fist-sized
	fine	#4 - 3/4"	0.19 - 0.75"	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19"	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079"	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017"	Flour-sized to sugar-sized to
Fines		Passing #200	<0.0029"	Flour-sized and smaller



Laboratory Test Abbreviations

MAX	Maximum Dry Density	MA	Mechanical (Partical Size) Analysis
EXP	Expansion Potential	AT	Atterberg Limits
SO4	Soluble Sulfate Content	#200	#200 Screen Wash
RES	Resistivity	DSU	Direct Shear (Undisturbed Sample)
pH	Acidity	DSR	Direct Shear (Remolded Sample)
CON	Consolidation	HYD	Hydrometer Analysis
SW	Swell	SE	Sand Equivalent

Modifiers

Trace	< 1 %
Few	1 - 5%
Some	5 - 12 %
Numerous	12 - 20 %

Sampler and Symbol Descriptions

- Approximate Depth of Seepage
- Approximate Depth of Standing Groundwater
- Modified California Split Spoon Sample
- Standard Penetration Test
- Bulk Sample
- No Recovery in Sampler

Bedrock Hardness

Soft	Can be crushed and granulated by hand; "soil like" and structureless
Moderately Hard	Can be grooved with fingernails; gouged easily with butter knife; crumbles under light hammer blows
Hard	Cannot break by hand; can be grooved with a sharp knife; breaks with a moderate hammer blow
Very Hard	Sharp knife leaves scratch; chips with repeated hammer blows

Notes:

Blows Per Foot: Number of blows required to advance sampler 1 foot (unless a lesser distance is specified). Samplers in general were driven into the soil or bedrock at the bottom of the hole with a standard (140 lb.) hammer dropping a standard 30 inches. Drive samples collected in bucket auger borings may be obtained by dropping non-standard weight from variable heights. When a SPT sampler is used the blow count conforms to ASTM D-1586

EXPLORATION LOG

Project: **Brawley - Jimemz**		Boring No.: **B-1**	
Location: **Top of Western Descending Slope (North End)**		Elevation: **N/A**	
Job No.: **320-10**	Client: **Ormat**	Date: **12/2/10**	
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By: **DLJ**	

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
1		**LACUSTRINE DEPOSITS (Ql)** Sandy SILT (SM): gray, dry, very stiff; trace fine sand.							
2				40	■		12.0	99.3	
3									
4		Clayey SILT (ML): dark brownish gray, moist, hard.		54	■		16.2	107.1	
5									
6				55	■		18.8	104.3	
7									
8									
9									
10		SILT with Sand (ML): brownish gray, moist, stiff; trace clay.		25	■		12.7	103.7	
11									
12									
13									
14		Silty SAND (SP): pale yellow, moist, medium dense; fine sand, poorly graded, trace rootlets.							
15				18	■		3.8	108.8	
16									
17									
18									
19		CLAY (CH): dark reddish gray, very moist, firm; plastic, laminated, with iron staining.							
20				11	■		28.8	94.4	
21									
22									
23									
24									

EXPLORATION LOG - V2 320-10.GPJ PETRA.GDT 12/13/10

PLATE A-1

Petra Geotecnical, Inc.

EXPLORATION LOG

Project: **Brawley - Jimemz**		Boring No.: **B-1**	
Location: **Top of Western Descending Slope (North End)**		Elevation: **N/A**	
Job No.: **320-10**	Client: **Ormat**	Date: **12/2/10**	
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By: **DLJ**	

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
26		dark gray, very moist, stiff; highly plastic.		20	■		28.7	94.9	
27									
28									
29									
30				15	■		29.7	95.3	
31									
32									
33									
34									
35				20	■		28.8	94.1	
36		minor iron staining.							
37									
38									
39									
40				27	■		20.1	104.7	
41		Sandy SILT (ML): grayish brown, very moist, stiff; some clay.	▽						
42									
43		Silty SAND (SM): grayish brown, saturated; fine, poorly graded, laminated.							
44									
45				25	■		24.9	101.8	
46									
47									
48									
49									

EXPLORATION LOG - V2 320-10.GPJ PETRA.GDT 12/13/10

PLATE A-2

Petra Geotecnical, Inc.

EXPLORATION LOG

Project: **Brawley - Jimemz**		Boring No.:	**B-1**
Location: **Top of Western Descending Slope (North End)**		Elevation:	**N/A**
Job No.: **320-10**	Client: **Ormat**	Date:	**12/2/10**
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By:	**DLJ**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
51		dark yellowish brown, saturated, loose.		11					
		Total Depth 51.5 Feet Groundwater Encountered between 41 and 44 feet during Drilling Groundwater at 34 Feet after 10 minute wait Boring Backfilled with Cuttings.							

PLATE A-3

Petra Geotecnical, Inc.

EXPLORATION LOG - V2 320-10.GPJ PETRA.GDT 12/13/10

EXPLORATION LOG

Project: **Brawley - Jimemz**		Boring No.:	**B-2**
Location: **Top of Western Descending Slope (South End)**		Elevation:	N/A
Job No.: **320-10**	Client: **Ormat**	Date:	**12/2/10**
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By:	**DLJ**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
1		**ARTIFICIAL FILL (Af)** SILT (ML): dry, loose.							
2		**LACUSTRINE DEPOSITS (Ql)**		40			19.1	108.1	El, Chem.
3		Clayey SILT (MH): dark gray, slightly moist, very stiff.							
4									
5				27			18.6	98.2	
6		SILT with Sand (ML): gray, dry, very stiff; laminated.							
7									
8									
9									
10		CLAY (CH): dark grayish brown, moist, very stiff; trace silt, some iron staining, plastic.		26			25.4	98.2	
11									
12									
13									
14									
15		Silty CALY (CL): dark brownish gray, moist, very stiff.		29			23.0	100.5	
16									
17									
18									
19		Silty SAND (SM): dark yellowish brown, very moist, medium dense; fine, poorly graded.							
20				13			22.6	97.6	
21									
22									
23									
24		CLAY (CH): dark grayish brown, moist, stiff; plastic.							

EXPLORATION LOG - V2 320-10.GPJ PETRA.GDT 12/13/10

PLATE A-4

Petra Geotecnical, Inc.

EXPLORATION LOG

Project: **Brawley - Jimemz**		Boring No.:	**B-2**
Location: **Top of Western Descending Slope (South End)**		Elevation:	**N/A**
Job No.: **320-10**	Client: **Ormat**	Date:	**12/2/10**
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By:	**DLJ**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
26				13	■		29.1	92.7	
27									
28									
29									
30		reddish brown.		21	■		24.8	98.4	
31									
		Total Depth 31.5 Feet No Groundwater Encountered Boring Backfilled with Cuttings.							

EXPLORATION LOG - V2 320-10.GPJ PETRA.GDT 12/13/10

PLATE A-5

Petra Geotecnical, Inc.

EXPLORATION LOG

Project: **Brawley - Jimemz**		Boring No.: **B-3**	
Location: **Southeast Corner of Site**		Elevation: **N/A**	
Job No.: **320-10**	Client: **Ormat**	Date: **12/2/10**	
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By: **DLJ**	

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
1		**LACUSTRINE DEPOSITS (Ql)** Silty CLAY (CL): dark brown, dry, very stiff.		27			15.5	94.5	
2									
3									
4		SILT with Sand (ML): light gray, moist, very stiff; trace clay, laminated.		26			20.3	99.4	
5									
6									
7									
8									
9									
10		CLAY (CH): dark grayish brown, moist, stiff; laminated, plastic.		20			27.3	98.2	
11									
12									
13									
14									
15		reddish gray, with iron staining.		25			24.8	101.1	
16									
17									
18									
19									
20		Silty SAND (SM): grayish brown, wet, medium dense; fine, poorly graded.		19			23.9	96.3	
21									
		Total Depth 21.5 Feet No Groundwater Encountered Boring Backfilled with Cuttings.							

EXPLORATION LOG - V2 320-10.GPJ PETRA.GDT 12/13/10

PLATE A-6

Petra Geotecnical, Inc.

EXPLORATION LOG

Project: **Brawley - Jimemz**		Boring No.:	**B-4**
Location: **Northeast Corner of Site**		Elevation:	**N/A**
Job No.: **320-10**	Client: **Ormat**	Date:	**12/2/10**
Drill Method: **Hollow-Stem Auger**	Driving Weight: **140 lbs / 30 in**	Logged By:	**DLJ**

Depth (Feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
1		**TOPSOIL** Silty CLAY (CL): dark grayish brown, slightly moist, loose; tilled.							
2		**LACUSTRINE DEPOSITS (Ql)** Silty CLAY (CL): dark grayish brown, slightly moist, very stiff; laminated.		43			19.3	106.6	EI
3									
4									
5		Silty CLAY (CH): dark grayish brown, slightly moist, very stiff; laminated, plastic.		20			21.9	99.4	
6									
7									
8									
9									
10		Silty SAND (SM): brown, slightly wet, loose; fine, poorly graded.		11			28.1	96.1	
11									
12		encountered grounwater between 12 to 13 feet.	▽						
13									
14									
15		medium dense, saturated.		15			26.4	95.9	
16									
17									
18									
19									
20		loose.		11			29.6	94.1	
21		CLAY (CH): dark grayish brown, moist.							
		Total Depth 21.5 Feet Groundwater Encountered Between 12 and 13 Feet Boring Backfilled with Cuttings.							

EXPLORATION LOG - V2 320-10.GPJ PETRA.GDT 12/13/10

PLATE A-7

APPENDIX B

LABORATORY TEST DATA

PETRA

APPENDIX B

LABORATORY TEST PROCEDURES

Soil Classification

Surficial soils encountered within the hand auger excavations were classified and described using the visual-manual procedures of the Unified Soil Classification System, and in general accordance with Test Method ASTM D 2488.

In-Situ Moisture and Density

Moisture content and unit dry density of in-place soil were determined in representative strata. Test data are summarized in the boring logs, Appendix A.

Expansion Potential

Expansion index tests were performed on selected samples of onsite soil in accordance with Test Method ASTM D4829. The expansion potential classification was determined on the basis of the expansion index value. The result of this test is presented on Plate B-1.

Chemical Analyses

Chemical analyses were performed on a selected sample of on-site soil to determine water-soluble sulfate and chloride content. These tests were performed in accordance with California Test Method Nos. 417 and 422, respectively. Test results are presented on Plate B-1.

Resistivity and pH

Resistivity and pH tests were performed on selected sample of on-site soil to provide a preliminary evaluation of its corrosive potential to concrete and metal construction materials. These tests were performed in accordance with California Test Method Nos. 532 and 643, respectively. The results of these tests are included in Plate B-1.

ORMAT
Brawley 190-Acre Site

February 3, 2011
J.N. 320-10

EXPANSION INDEX TEST DATA

Boring/Depth (feet)	Soil Type	Expansion[1] Index	Expansion[2] Potential
B-2 @ 0-5	Dark gray clayey SILT(MH)	72	Medium
B-4 @ 1-5	Dark grayish brown silty CLAY (CH)	102	High

CORROSIVITY TEST DATA

Boring/Depth (feet)	Sulfate[3] (%)	Chloride[4] (ppm)	pH[5]	Resistivity[5] (ohm-cm)	Corrosivity Potential
B-2 @ 0-5	0.268	262	6.9	120	concrete: severe steel: severe

(1) PER ASTM D4829
(2) PER 2007 CBC Section 1802.3.2
(3) PER CALIFORNIA TEST METHOD NO. 417
(4) PER CALIFORNIA TEST METHOD NO. 422
(5) PER CALIFORNIA TEST METHOD NO. 643
(5) PER CALIFORNIA TEST METHOD NO. 643

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Pasadena
Irvine
San Diego
Woodland Hills

May 12, 2021

Ms. Corinne Lytle Bonine, PMP
Environmental Planner
Chambers Group, Inc.

LLG Reference: 3-20-3302

Subject: **Brawley Solar Project**
Imperial County, California

Dear Ms. Bonine:

Linscott, Law & Greenspan, Engineers (LLG) has prepared this letter report to summarize the results of our evaluation of the proposed Brawley Solar Project ("Project") from a traffic and transportation perspective. The Project site is located at 5003 Best Ave, Brawley, California.

INTRODUCTION

The project is proposing to build, operate and maintain the Brawley Solar Energy Facility, a 40 Megawatt (MW) photovoltaic (PV) solar farm and 40 MW/160 MWh battery energy storage system (BESS) on approximately 225 acres in Brawley, Imperial County. The County of Imperial (County) has identified the Project as a Solar Energy Electrical Generator, which is a permitted use within the A-2-G zone upon approval of a Conditional Use Permit (CUP). The purpose of this letter report is to explain the construction traffic that will be generated by the project. Included in this traffic report are the following.

- Project Description
- Existing Conditions Discussion
- Trip Generation
- Summary and Conclusions

PROJECT DESCRIPTION

Project Location

The Project is located at 5003 Best Ave, Brawley, California on six privately owned parcels. Imperial County identifies the land use of the Project site as Agriculture and zoning as General Agricultural. Currently the Project site contains alfalfa fields within different levels of harvest. North and east of the Project site is undeveloped agricultural land. South of the Project site is a mixture of undeveloped agricultural

land and dirt lots used for staging activities. The City of Brawley Wastewater Treatment Plant is located along the western edge of the Project site.

Figure 1 shows the Project Area Map.

Project Description
Solar cells, also called photovoltaic (PV) cells, convert sunlight directly into electricity. PV cells combine to create solar modules, or panels, and many solar panels combined together to create one system is called a solar (or PV) array. 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.

All access to the Project site would be located off Best Avenue. 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. An all-weather surface access road, to meet the County's standards, would surround the perimeter of the Project site, as well as around solar blocks no greater than 500 by 500 feet. The Project would be required to conform to all California Public Utilities Commission (CPUC) safety standards. The Project site perimeter would be fenced with a 6-foot high chain link security fence topped with barbed wire, with gates at the access points.

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 power-block, after the gen-tie line has been completed. 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.

During construction the workforce would consist of laborers, electricians, supervisory personnel, support personnel and construction management personnel. Up to 120 people are expected to be on-site per day. Project laydown and construction staff parking is expected to be located on-site or at the North Brawley Geothermal Power Plan in an approximately 4-acre area.

Construction is anticipated to start in quarter four of 2021 and would take approximately 6-9 months to complete. 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

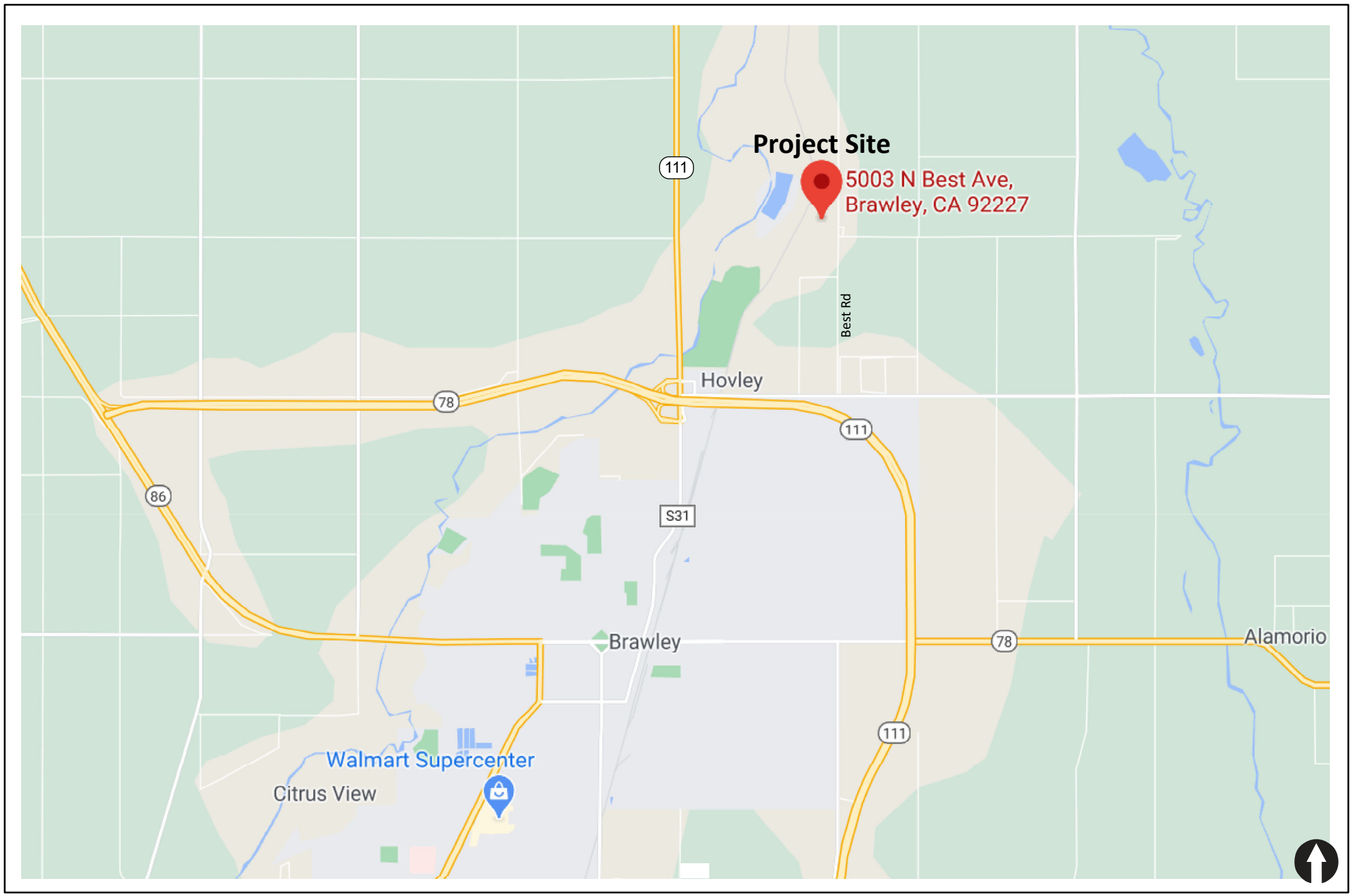
occur outside of the County's specified working hours, permission in writing will be sought at the time. The County's construction equipment operation shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays.

Construction of the 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) (60 workers and 50 trucks).
2. PV system installation and testing, which includes installation of mounting posts, assembling the structural components, mounting the PV modules, wiring; (7 months) (100 workers and 60 trucks).
3. Site clean-up and restoration. (1 month) (40 workers and 40 trucks).

Once fully constructed, the Project would be operated on an unstaffed basis and be monitored remotely from the Brawley Geothermal Power Plant control room, with periodic on-site personnel visitations for security, maintenance and system monitoring.

Figure 2 shows the Construction Access Points



LINSCOTT LAW & GREENSPAN engineers

N:\3302\Figures
Date: 02/09/21

Figure 1

Project Area Map

BRAWLEY SOLAR PROJECT

LINSCOTT LAW & GREENSPAN engineers

N:\3302\Figures
Date: 05/12/21

Figure 2

Construction Access Points

BRAWLEY SOLAR PROJECT

EXISTING CONDITIONS

Existing Transportation Conditions

The following is a description of the nearby roadway network:

Best Avenue is an unclassified roadway in the Imperial County Circulation Element Plan. It is currently constructed as a two-lane north-south roadway in the study area. There is no posted speed limit. There are no bike lanes provided.

Ward Road is an unclassified roadway in the Imperial County Circulation Element Plan. It is currently constructed as a two-lane east-west roadway in the study area. There is no posted speed limit. There are no bike lanes provided.

State Route 111 (SR-111) begins at the International Border between Mexico and the United States traveling north with two travel lanes in each direction. SR 111 (Imperial Avenue) is classified as a 4-Lane primary north/south arterial in the City of Calexico Circulation Element. Class II bicycle lanes are provided north of SR 98. Bus stops are not provided. Curb, gutter, and sidewalks are provided south of SR 98. Curbside parking is permitted intermittently south of SR 98, on both sides of the roadway. The speed limit is posted at 55 mph.

TRIP GENERATION

Project Trip Generation

As described above, construction of the Project would occur in phases beginning with site preparation and grading and ending with equipment setup and commencement of commercial operations. During peak construction activities, 120 workers and a maximum of 60 trucks at a time would be required.

Daily and peak hour trip generation rates and in/out splits were calculated for the peak construction period using detailed data developed for analysis of the project's impacts. Construction activities would generally occur during a 12-hour-shift day. A worst case scenario in which all employees would arrive prior to the morning peak commuter period (7:00 – 9:00 a.m.) and depart within the evening peak period (4:00 – 6:00 p.m.) was assumed. Truck trips are anticipated to be distributed generally evenly throughout the 12-hour-shift day. In order to provide a conservative analysis, all employees were assumed to arrive and depart during peak commute periods. In addition, no carpooling for construction employees was assumed.

A passenger-car-equivalent (PCE) factor of 2.5 was applied to heavy vehicles (per the Highway Capacity Manual or HCM) to account for their reduced performance characteristics in the traffic stream (e.g. starting, stopping, and maneuvering). This information was used in calculating the project-generated average daily traffic (ADT).

Table 1
Construction Project Trip Generation

Use	Size	PCE[b]	Daily Trips		AM Peak Hour		PM Peak Hour	
			Rate (In + Out)	Volume (ADT)[a]	Volume		Volume	
					In	Out	In	Out
Personnel	120	1	2.0 /personnel	240	114	6	6	114
Trucks	60	2.5	2.0 /truck	300	13	13	13	13
Subtotal	**-**	**-**	**-**	***540***	***127***	***19***	***19***	***127***

Footnotes:

a. ADT – Average daily traffic

b. PCE – Passenger Car Equivalent

General Notes:

1. To estimate the employee traffic, it is conservatively assumed that 100% of the employee traffic would access the work area during the same commuter peak hours between 7:00 – 9:00 a.m. & 4:00 – 6:00 p.m..

2. The In/Out splits assumed are 95:5 during AM peak hour and 5:95 during the PM peak hour.

3. Truck trips are estimated to occur relatively evenly throughout a 12-hour construction hours proposed for the Project. For 30 trucks, this calculates to approximately 2.3 trucks/hour without PCE.

4. A passenger-car-equivalent (PCE) factor of 2.5 was applied to heavy vehicles (per the Highway Capacity Manual or HCM)

Table 1 tabulates the total daily and peak hour project traffic volumes. The project during construction trip generation is calculated to be 540 ADT with 127 inbound/ 19 outbound trips during the AM peak hour and 19 inbound/ 127 outbound trips during the PM peak hour. These values include the heavy-vehicle PCE-adjustment.
Post-construction, the facility would be operated on an unstaffed basis and be monitored remotely from the Brawley Geothermal Power Plant control room, with periodic on-site personnel visitations for security, maintenance and system monitoring. Therefore, an assessment of the post-construction scenario was not conducted.

CONCLUSION

Based on the low amount of construction trips generated and low existing traffic volumes on area roadways, no substantial transportation impacts are anticipated.

Vehicle Miles Traveled (VMT) analysis is not required since the post construction operational traffic is close to zero.

Please call us at 858.300.8800 if you have any questions or comments regarding this letter report.

Sincerely,

Linscott, Law & Greenspan, Engineers

John Boarman, PE
Principal

2021

Water Supply Assessment

BRAWLEY SOLAR ENERGY FACILITY

ORNI 30. LLC

PREPARED BY: DUBOSE DESIGN GROUP

November 2021

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ACRONYMS

A-2 G	Agricultural Zone – 2, Geothermal Overlay
AC	Alternative Current
AF	Acre-Foot or Acre-Feet
AFY	Acre-Feet per Year
AOP	Annual Operations Plan
APN	Assessor's Parcel Number
BESS	Battery Energy Storage System
CAP	Central Arizona Project
CARB	California Air Resources Board
CDCR	California Department of Corrections and Rehabilitation
CDPH	California Department of Public Health
CDWR	California Department of Water Resources
CEQA	California Environmental Quality Act
CPUC	California Public Utility Commission
CRWDA	Colorado River Water Delivery Agreement
CUP	Conditional Use Permit
CVWD	Coachella Valley Water District
CWC	California Water Code
DC	Direct Current
EDP	IID Equitable Distribution Plan
EHS	Environmental Health & Safety
EIS	Environmental Impact Statement
G	Land Zoning Geothermal
Gen-Tie Line	Generation Tie Line
ICPDS	Imperial County Planning and Development Services
ICS	Intentionally Created Surplus
IEEE	Institute of Electrical and Electronics Engineers
IID	Imperial Irrigation District

IOPP	Inadvertent Overrun Payback Policy
ISG	Interim Surplus Guidelines
IRWMP	Integrated Regional Water Management Plan
IVAPCD	Imperial Valley Air Pollution Control District
IWSP	Interim Water Supply Policy
KAF	Thousand Acre Feet
KGRA	Known Geothermal Resource Area
kV	Kilovolt
kVA	Kilovolt-amp
LAFCO	Local Agency Formation Commission
LCR	Lower Colorado Region
LCRWSP	Lower Colorado Water Supply Project
M-2	Land Zoning Industrial-2
MCI	Municipal, commercial, industrial
MEER	Mechanical and Electrical Equipment Room
MGD	Million Gallons per Day
MW	Megawatt
MWh	Megawatt per hour
MWD	Metropolitan Water District of Southern California
NAF	Naval Air Facility
ORNI	ORNI 30, LLC (Applicant)
PCS	Power Conversion Station
PV	Photovoltaic
PE	Land Zoning Pre-Existing
PVID	Palo Verde Irrigation District
QSA	Quantification Settlement Agreement and Related Agreements
RE Overlay	Renewable Energy Overlay
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition

SDCWA	San Diego County Water Authority
SNWA	Southern Nevada Water Authority
SWRCB	State Water Resource Control Board
TLCFP	Temporary Land Conversion Fallowing Policy
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
WSA	Water Supply Assessment

PURPOSE OF WATER SUPPLY ASSESSMENT

This Water Supply Assessment (WSA) was prepared for the Imperial County Planning & Development Services (Lead Agency) by Dubose Design Group, regarding ORNI 30, LLC (ORNI) (the "Applicant") Brawley Solar Energy Facility ("Project"). This study is a requirement of California law, specifically Senate Bill 610 (referred to as SB 610). 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 Water Code. 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 was approved by the Governor and filed with the Secretary of State on October 9, 2001, and became effective January 1, 2002.[1] SB 610 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 that may supply water for the project and to request the applicants to prepare a specified water supply assessment.

This study has been prepared pursuant to the requirements of CWC Section 10910, as amended by SB 610 (Costa, Chapter 643, Stats. 2001). The purpose of SB 610 is to advance water supply planning efforts in the State of California; therefore, SB 610 requires the Lead Agency, to identify any public water system or water purveyor that may supply water for the project and to prepare the WSA after a consultation. Once the water supply system is identified and water usage is established for construction and operations for the life of the project, the lead agency is then able to coordinate with the local water supplier and make informed land use decisions to help provide California's cities, farms and rural communities with adequate water supplies.

Under SB 610, water supply assessments must be furnished to local governments for inclusion in any environmental documentation for certain projects (as defined in California Water Code (CWC) Section 10912 [a]) that are subject to the California Environmental Quality Act (CEQA). Due to

[1]SB 610 amended Section 21151.9 of the California Public Resources Code, and amended Sections 10631, 10656, 10910, 10911, 10912, and 10915, repealed Section 10913, and added and amended Section 10657 of the Water Code. SB 610 was approved by California Governor Gray Davis and filed with the Secretary of State on October 9, 2001.

increased water demands statewide, this water bill seeks to improve the link between information on water availability and certain land use decisions made by cities and counties. This bill takes a significant step toward managing the demand placed on California's water supply. It provides further regulations and incentives to preserve and protect future water needs. Ultimately, this bill will coordinate local water supply and land use decisions to help provide California's cities, farms, rural communities, and industrial developments with adequate long-term water supplies. The WSA will allow the lead agency to determine whether water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.

PROJECT DETERMINATION ACCORDING TO SB 610 - WATER SUPPLY ASSESSMENT

With the introduction of SB 610, any project under the California Environmental Quality Act (CEQA) shall provide a Water Supply Assessment if the project meets the definition of CWC § 10912. Water Code section 10911(c) requires for that the lead agency "determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses." Specifically, Water Code section 10910(c)(3) states that "If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20 year projection, will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."

After review of CWC § 10912a, and Section 10912 (a)(5)(B), it was determined that the Applicant's Brawley Solar Energy Facility, a 40 Megawatt (MW) photovoltaic (PV) solar farm and 40 MW/160 Megawatt hour (MWh) battery energy storage system (BESS) on approximately 227 acres in Brawley, Imperial County (proposed Project), is deemed a project as it is considered an industrial

water use project that is considered an industrial plant of 40 acres or more in accordance to CWC § 10912a (5). The proposed project totals 227 acres which exceeds the 40 acre or less allowance. SB 610 requires an analysis to show that adequate water is available for the proposed Project in various climate scenarios for at minimum 20 years; however, Imperial County issues Conditional Use Permits.

EXECUTIVE SUMMARY

Imperial County Planning & Development Services (ICPDS) in coordination with Imperial Irrigation District (IID) has requested a WSA as part of the environmental review for the proposed Brawley Solar Energy Facility Project ("Project"). This study is intended for use by the ICPDS and IID in its evaluation of water supplies for existing and future land uses. The evaluation examines the following water elements:

- Water availability during a normal year
- Water availability during a single dry, and multiple dry water years
- Water availability during the Project's 30-year projection to meet existing demands
- Expected 30-year water demands of the Project
- Reasonably foreseeable planned future water demands to be served by the IID

The proposed Project site is located within IID's Imperial Unit and district boundary and as such is eligible to receive water service. IID has adopted an Interim Water Supply Policy (IWSP) for Non-Agricultural Projects, from which water supplies can be contracted to serve new developments within IID's water service area. For applications processed under the IWSP, applicants shall be required to pay a processing fee and, after IID board approval of the corresponding agreement, will be required to pay a reservation fee(s) and annual water supply development fees.

The IWSP sets aside 25,000 acre-feet annually (AFY) of IID's Colorado River water supply to serve new non- agricultural projects. As of October 2021, a balance of 23,800 AFY remain available under the IWSP for new non-agricultural projects ensuring reasonably sufficient supplies for such

projects. The proposed Project water demand for construction for a period of 1 year of approximately 32.5 AFY, represents approximately 0.03% of the annual unallocated supply set aside for new non-agricultural projects, and the total water demand for operations is approximately 3.1 AFY for 28 years and represents approximately 0.01% of the annual unallocated supply set aside for new non-agricultural projects. Decommissioning is expected to take 1 year and use approximately 32.5 AFY, representing approximately 0.03% of the annual unallocated supply set aside for new non-agricultural projects, the project is expected to consume 151.8 AF for the 30-year lifespan of the proposed Project. The annual average water demand of approximately 5.06 AFY represents .02% of the annual unallocated supply set aside for new non-agricultural projects. Thus, the proposed Project's estimated water demand would not affect IID's ability to provide water to other users in IID's water service area.

Table 1: Project APNs, Canals and Gates and Land Relationship to Project

IID Gate/ Canal	APN	Ownership	Zoning	Acres[2]
Best Canal-Gate 110	037-140-006	ORNI 30,LLC	A2-G	32.75 AC
Best Canal-Gate 113	037-140-023 037-140-022	ORNI 30,LLC	A2-G	30.40 AC 30.30 AC
Best Canal-Gate 114	037-140-020 037-140-021	ORNI 30,LLC	A2-G	62.27 AC 16.79 AC
Best Canal -Gate 115	037-140-020	ORNI 30,LLC	A2-G	

[2] The total acre amount and the project amount specified differ by 54.5 due to the fact that the project considers the linear acreage of the proposed Gen Tie Line.

Table 2: Project Water Use Summary

Water Use	Expected Years	Total AF
Construction[3]	1 Year	32.5 AF
Total for Water Construction		32.5 AF
Processing, Daily Plant Operations & Mitigation[4]	28 Years	3.1 AFY
Total Water Usage for Processing Daily Plant Operations & Mitigation		86.8 AF
Project Decommissioning	1 Year	32.5 AF
Total for Project Decommissioning		32.5AF
Total Water Usage for Project	**30 Years**	**151.8 AF**
Amortized	**30 Years**	**5.06 AFY**

Table 3: Amortized Project Water Summary

Project Water Use – Life of Project	Years	Total Combined[1]	IWSP (AFY)	% of Remaining Unallocated IWSP per Year[3]
32.5 AFY	1 year	32.5 AF	23,800 AFY	0.03%-
3.1 AFY	28 Years	86.8 AF	23,800 AFY	0.01 %
32.5 AFY	1 Year	32.5 AF	23,800 AFY	0.03%-
5.06 AFY[2]	**30 Years**	**151.8 AF**	**23,800 AFY**	**0.02%**

[1](AFY*Years)

[2](Total Combined/30 Years*100)

[3](AFY/23,800 AFY*100)

PROJECT DESCRIPTION

ORNI 30, LLC (ORNI) is proposing to build, operate and maintain the Brawley Solar Energy Facility, a 40 Megawatt (MW) photovoltaic (PV) solar farm and 40 MW/160 Megawatt hour (MWh) battery energy storage system (BESS) on approximately 227 acres of private land in Brawley, in an unincorporated area of Imperial County (proposed Project) located at Best Avenue and Ward Road Please refer to Figure 1 for the Project's Regional Location (Figure 1 Site Regional Location) , and Figure 2 for the Project Site and Vicinity (Figure 2 Aerial View of Project Site and Vicinity)

[3] 20, 000 gallons of water will need to be stored on site during construction per Imperial County Fire Standards.

[4] 180,000 gallons of water will need to be stored on site per Imperial County Fire Standards for operations.

In general, the proposed Project can be described as follows: Power generated by the proposed 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. The inverterswould convert the DC power generated by the panels to alternating current (AC) power and the pad mounted transformers would step up the voltage. The Project would connect to the North Brawley Geothermal Power Plant substation southwest of the proposed Project site via an approximately 1.8-mile-long aboveground 92 kilovolt (kV) generation tie line (gen-tie line). Energy generated and stored by the proposed Projectwill 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 Project plans to start constructon in the first quarter of 2022 and would take approximately 6-9 months, beginning operations by December 2022. Please refer to Figure 3 for the conceptual project layout and tentative site plan (Figure 3. Project Layout/Site Plan). The site will retain its domestic water delivery from a private vendor who will haul potable water to the project site.

The Brawley Solar Energy Facility involves two entitlement permits from Imperial County Planning Department including a General Plan Amendment and a Conditional Use Permit that will allow for the project to be in conformance with the Imperial County General Plan and Title 9 Division 5 Zoning Areas Established.

The Project will need to contract with IID to deliver up to 5.06 AFY see Table 2 of untreated water, via the Best Canal Gates 110, 114, 113, & 115. The proposed Project is anticipated to use approximately 151.8 AF for the duration of 30 Years , 3.1 AFY for operation of the Project for a duration of 28 years, which equals 86.8 AF of the Conditional Use Permits lifespan.

This WSA does not include an analysis of water supply for domestic potable water for, workers and visitors for domestic water , only that the project is expected to purchase potable water from a California certified vendor and have the water hauled to the site.

Project site and Location

The Project is located at 5003 Best Avenue, Brawley, California on five privately owned parcels: Assessor's Parcel Numbers (APNs) 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006 (Project site) as shown in Figure 1. The County of Imperial (County) identifies the land use of the proposed Project site as Agriculture and zoning as General Agricultural (A2-G; County 2020). Currently the Project site contains alfalfa fields within different levels of harvest. North and east of the Project site is undeveloped agricultural land. South of the Project site is a mixture of undeveloped agricultural land and dirt lots used for staging activities. The City of Brawley Wastewater Treatment Plant is located along the western edge of the Project site.

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 northern portion of the project site (APNs 037-140-020 and 037-140-021) is located within the RE Overlay Zone. However, the entire project site (APNs 037-140-020, 037-140-021, 037-140-022, 037-140-023, and 037-140-006) is located outside of the RE Overlay Zone. All parcels are within the Known Geothermal Resource Area. Therefore, the applicant is requesting a General Plan Amendment to include/classify all five project parcels into the RE Overlay Zone. No change in the underlying General Plan land use (Agriculture) is proposed.

Primary access to the Project site would be located off Best Avenue. The primary road will be using an existing access road while a new Improved access roads would be designed and constructed with an all-weather surface, to meet the County Fire Department's standards and Imperial Irrigations Districts standards due to the crossing of any canal, and lead to a locked gate that can be opened by any emergency responders. A secondary emergency access would be located to the

north of the Project site, just west of the train tracks. An all-weather surface access road, to meet the County's standards, would surround the perimeter of the Project site, as well as around solar blocks no greater than 500 by 500 feet. The proposed emergency access road is being proposed on Best Drain which will need to be designed and constructed to meet the County Fire Department's standards and Imperial Irrigations Districts standards. The Project would be required to conform to all California Public Utilities Commission (CPUC) safety standards. The Project site perimeter would be fenced with a 6-foot high chain link security fence topped with barbed wire, with gates at the access points. glass.

Gen-Tie Line

The Project would connect to a switchyard located in the southern end of the Project site and then routed through the BESS building for energy storage. Power would then be transferred to the North Brawley Geothermal Power Plant substation via a 1.6-mile-long double circuit 13.8 and 92 kV gen-tie line with 66-foot-high poles to interconnect to the Imperial Irrigation District (IID) at the North Brawley 1 substation located at Hovley Road and Andre Road, southwest of the Project site. The transmission line would span the New River. A 12-inch diameter conduit railroad undercrossing would connect the PV arrays from the western side of the railroad tracks to the inverters on the eastern side.

BESS

The Project's BESS component will be placed on in a 54,000 square-foot concrete pad at the southeastern corner of the Project site. The BESS will consist of 12 banks of enclosures totaling up to 432 enclosures. Each bank of batteries will be supported by a DC Combiner, control panel, and inverter/transformer skid. Each of the enclosures will utilize self-contained liquid cooling systems and include built-in fire suppression systems. All batteries will be lithium-ion based capable of storing 40 MW/160 MWh.

Fiberoptic Cable and Microwave Tower

A proposed fiberoptic line from the Project substation would be connected with the existing North Brawley substation approximately 1.6 miles to the southwest, which is required to connect the Project 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 Project substation and associated facilities. New telecommunications equipment would be installed at the Project substation within the unmanned Mechanical and Electrical Equipment Room (MEER). The proposed fiber optic telecommunications cable, once past the POI, would utilize existing transmission lines to connect to the North Brawley substation. The length of this proposed fiber optic telecommunications cable route would be approximately 1.6 miles. Alternatively, a microwave tower 40 to 100-feet tall could replace the need for a fiberoptic line to transmit data offsite. If selected, this microwave tower would be located within the Project substation footprint.

Substation

The proposed 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, with the footprint encompassing approximately 1.2 acres of the approximately 227-acre Project parcel. The tallest feature of would be the dead-end portal structure (39 feet 6 inches) coming in off the gen-tie line, which would have a lighting mast attached, making it 54 feet 6 inches total. The onsite substation control room would house the SCADA, switchgear, breakers, and DC batteries. Additionally, a 20kV emergency backupgenerator would be located adjacent to this control room for the HVAC system. The proposed substationsite would be located at the southwest quarter of the parcel, adjacent to the BESS building. The California Building Code and the IEEE 693, Recommended Practices for Seismic Design of Substations, will be followed for the substation's design, structures, and equipment.

Construction Personnel and Equipment

The Project's construction workforce would consist of laborers, electricians, supervisory personnel, support personnel and construction management personnel. Up to 120 people are expected to be on-site per day. Water for construction personnel will be purchased through a local vendor. Project laydown and construction staff parking is expected to be located on-site or at the North Brawley Geothermal Power Plan in an approximately 4-acre area.

Construction Schedule, Sequence and Phasing

Construction is anticipated to start in quarter four of 2021 and would take approximately 6-9 months to complete. Construction would commence only after all required permits and authorizations have been secured. Construction of the 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:

Site Preparation, which includes clearing grubbing, grading, service roads, fences, drainage, and concrete pads; (1 month) PV and BESS system installation and testing, which includes installation of mounting posts, assembling the structural components, mounting the PV modules, wiring; (7 months) and Site clean-up and restoration. (1 month)

Project Operation and Maintenance Activities

Once fully constructed, the 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 up to four times per year to wash the panels. As the Project's PV arrays and BESS components produce and manage 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 approximately3.1 acre feet annually (AFY), which would be trucked to the Project site as needed.

Project Decommissioning

Solar equipment has a lifespan of approximately 30 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 for disposal and recycling (as applicable), and all disturbed areas would be reclaimed and recontoured. The total projected water use for decommissioning is expected to be 32.5 AF and its projected to take up to a year to decommission.

Figure 1: Project Site Regional Location

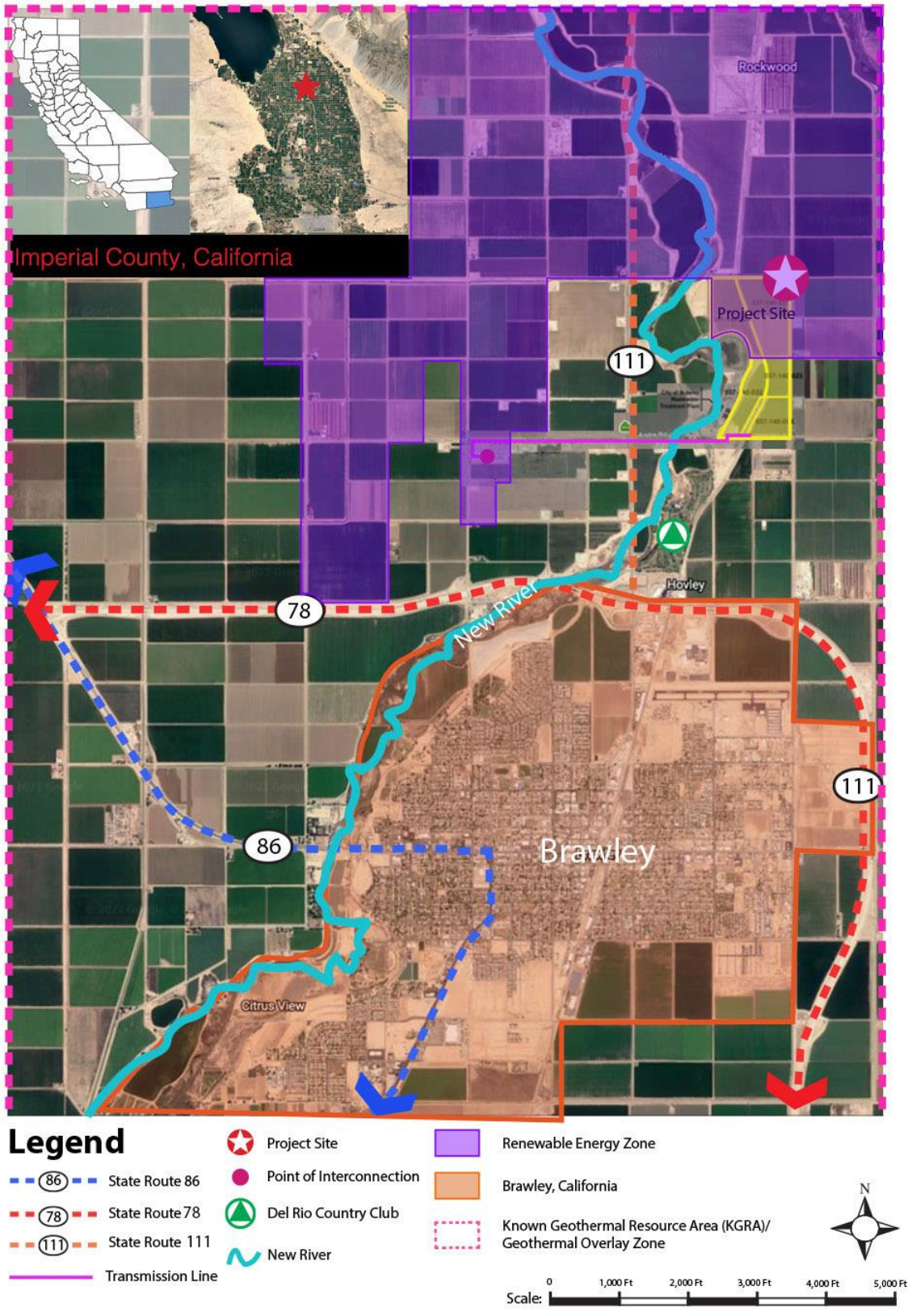


Figure 2: Aerial Map of Project Vicinity

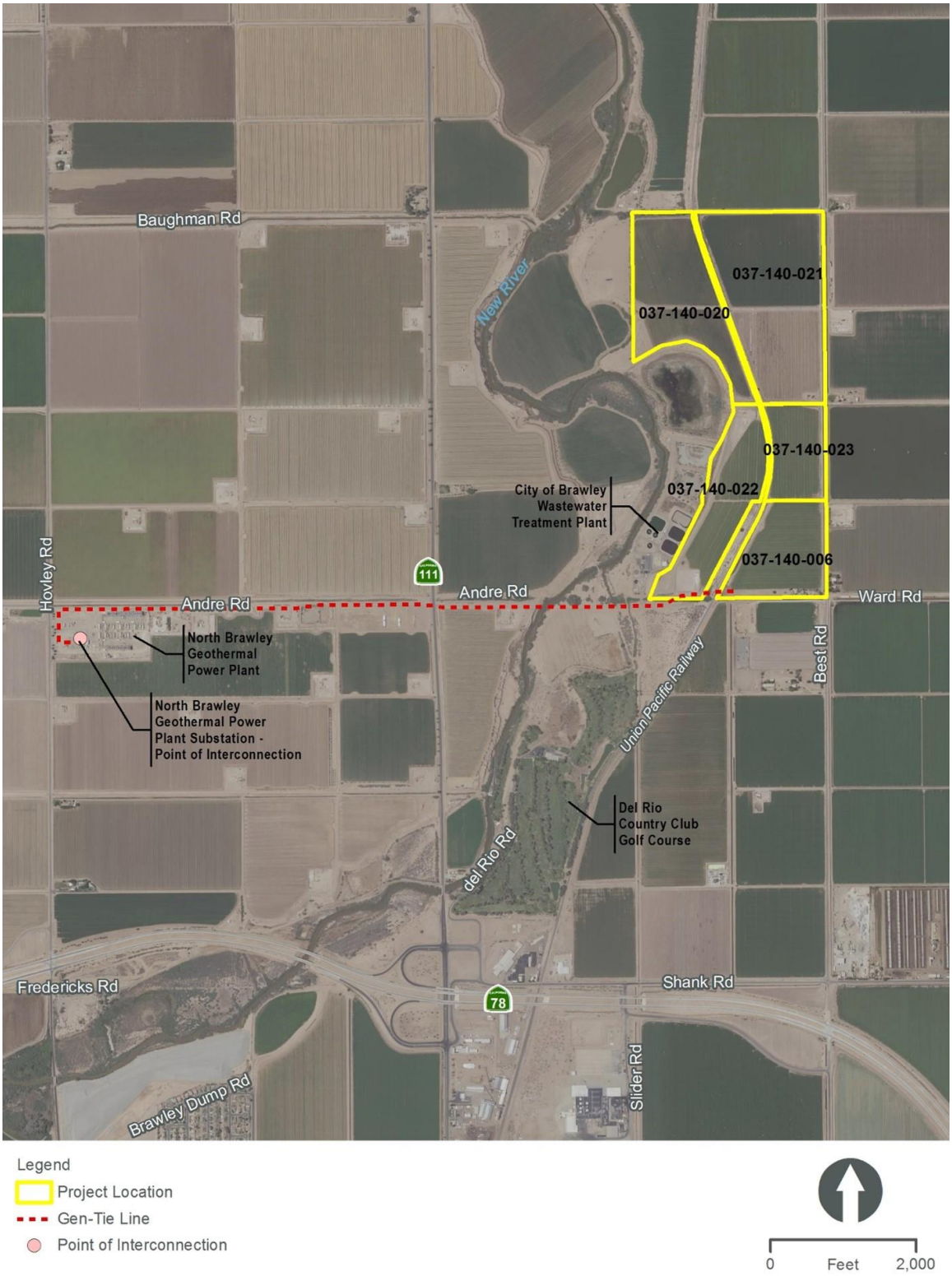
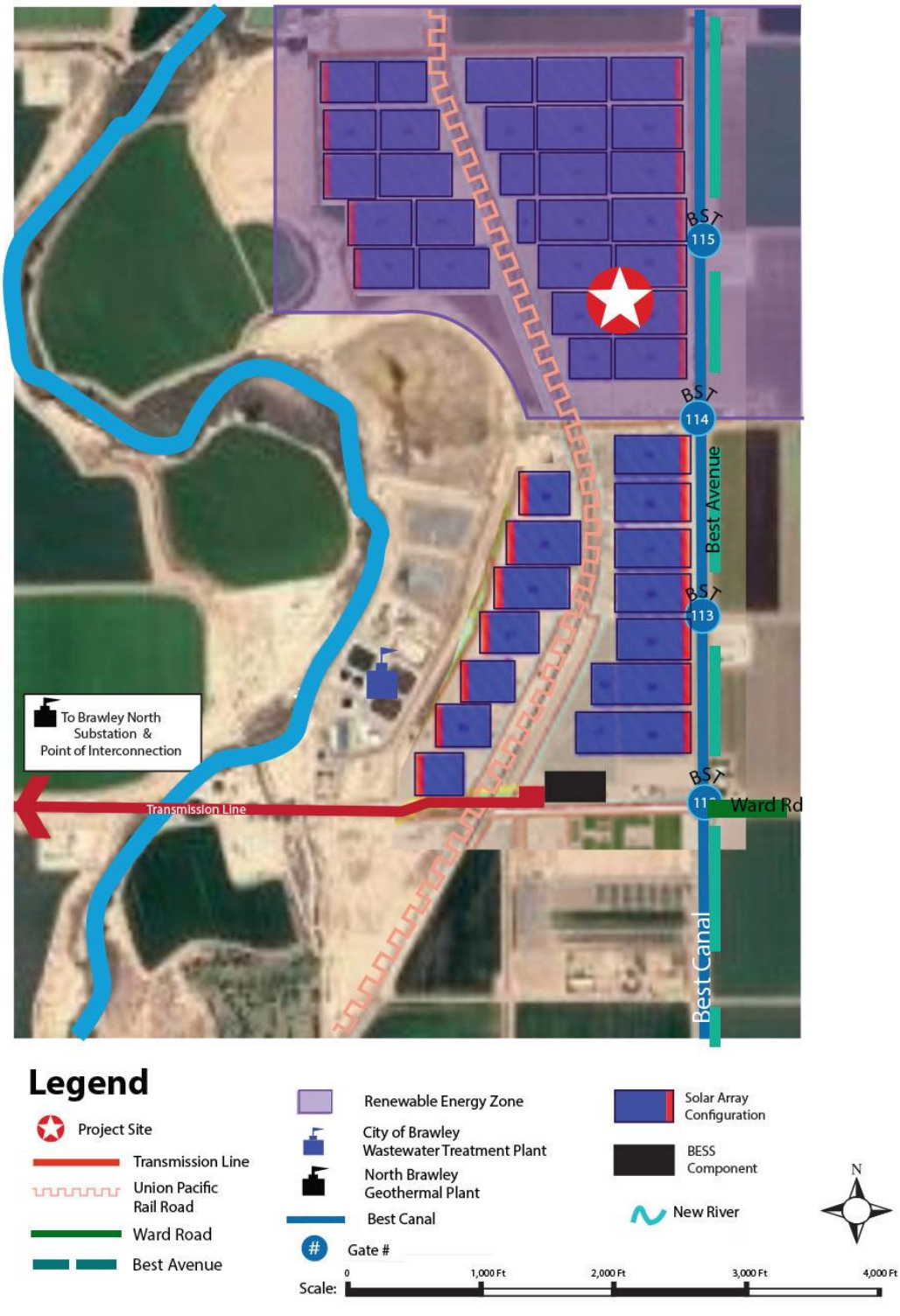


Figure 3: Project Layout/ Site Plan



Description of IID Service Area

The proposed Project site is located in Imperial County in the southeastern corner of California. The County is comprised of approximately 4,597 square miles or 2,942,080 acres.[5] Imperial County is bordered by San Diego County to the west, Riverside County to the north, the Colorado River/Arizona boundary to the east, and 84 miles of International Boundary with the Republic of Mexico to the south. Approximately fifty percent of Imperial County is undeveloped land under federal ownership and jurisdiction. The Salton Sea accounts for approximately 11 percent of Imperial County's surface area. In 2020, sixteen percent (16%) of the area was in irrigated agriculture (466,952 acres), including 14,676 acres of the Yuma Project, some 35 sections or 6,227 acres served by Palo Verde Irrigation District (PVID), and 446,049 acres served by IID.[6], [7]

The area served by IID is located in the Imperial Valley, which is generally contiguous with IID's Imperial Unit, lies south of the Salton Sea, north of the U.S./Mexico International Border, and generally in the 658,942 acre area between IID's Westside Main and East Highline Canals.[8] In 2020, IID delivered untreated water to 494,921 net irrigated acres, predominantly in the Imperial Valley, along with small areas of East and West Mesa land , including non-agricultural areas.

The developed area consists of seven incorporated cities (Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial and Westmorland), three unincorporated communities (Heber, Niland and Seeley), and three institutions (Naval Air Facility [NAF] El Centro, Calipatria CDCR, and Centinela CDCR) and supporting facilities. **Figure 4** provides a map of the IID Imperial Unit boundary, as well as cities, communities and main canals.

[5] *Imperial County General Plan*, Land Use Element 2008 Update

[6] *USBR website: Yuma Project. 7 June 2017, PVID website: About Us, Acreage Map. 7 June 2017.*

[7] Palo Verde Irrigation District Acreage Map <http://www.pvid.org/pviddocs/acreage_2012.pdf> 7 June 2013

[8] *IID Annual Inventory of Areas Receiving Water Years 2017, 2016, 2015*

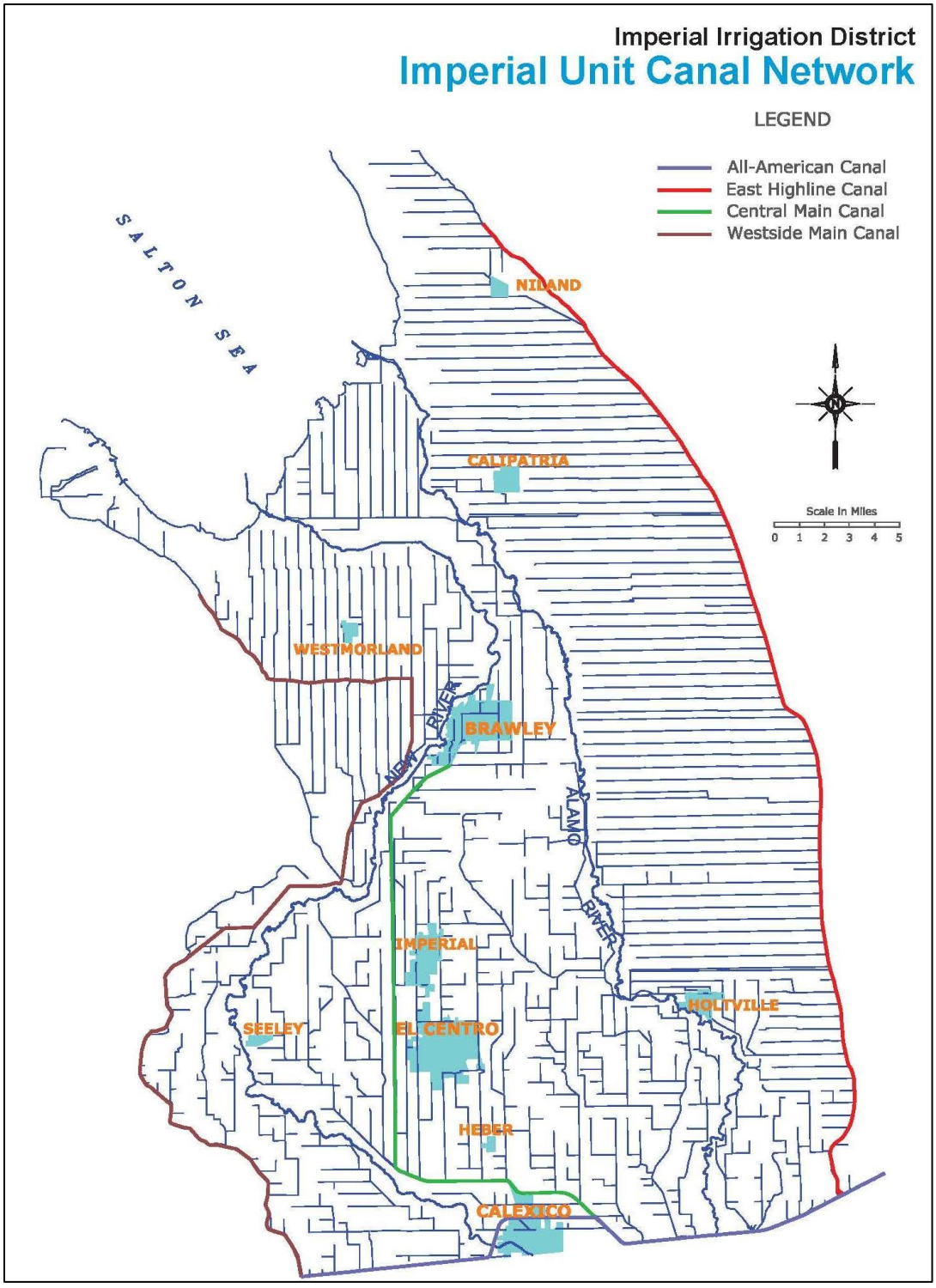


Figure 4 IID Imperial Unit Boundary and Canal Network

Climate Factors

Imperial Valley, located in the Northern Sonoran Desert, which has a subtropical desert climate is 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 4. 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 5. The thirty-year, 1991-2020, average annual air temperature was 73.7°F, and average annual rainfall was 2.70 inches, see Table 5 and Table 6. This record shows that while average annual rainfall has fluctuated, the 10-year average temperatures have slightly increased over the 30-year averages.

Table 4 Climate Characteristics, Imperial, CA 100-Year Record, 1921-2019

Climate Characteristic	Annual Value
Average Precipitation (100-year record, 1921-2020)	2.79 inches (In)
Minimum Temperature, Jan 1937	16 °F
Maximum Temperature, July 1995	121 °F
Average Minimum Temperature, 1921-2020	48.2 °F
Average Maximum Temperature, 1921-2020	98.3 °F
Average Temperature, 1921-2020	73.0 °F

Source: IID Imperial Weather Station Record

Table 5: IID Areawide Annual Precipitation (In), (1991-2020)

1990	1991	1992	1993	1994	1995	1996
1.646	3.347	4.939	2.784	1.775	1.251	0.685
1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
1.328	2.604	1.399	0.612	0.516	0.266	2.402
2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
4.116	4.140	0.410	1.331	1.301	0.619	3.907
2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
2.261	2.752	2.772	1.103	2.000	1.867	2.183
2018	**2019**	**2020**				
1.305	3.017	2.673				

Source: Computation based on polygon average of CIMIS as station came online in the WIS.[9]

Notable from Table 5 (above) and Table 6 (below) is that while average annual rainfall measured at IID Headquarters in Imperial, CA, has been decreasing, monthly average temperatures are remarkably consistent.

Table 6: Monthly Mean Temperature (°F) – Imperial, CA 10-Year, 30-Year & 100-Year (2011-2020, 1991-2020, 1921-2020)

	Jan			Feb			Mar			Apr		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	82	32	57	84	35	60	93	42	67	100	47	73
30-year	81	34	57	84	37	60	92	41	66	99	47	71
100-year	80	31	55	86	34	60	91	40	64	99	46	71
	May			**Jun**			**Jul**			**Aug**		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	105	53	76	115	61	87	115	70	92	114	70	92
30-year	105	54	78	112	60	86	115	68	92	114	69	92
100-year	105	53	78	113	59	86	114	68	92	113	68	92
	Sep			**Oct**			**Nov**			**Dec**		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	111	62	87	101	52	76	91	39	64	80	32	55
30-year	110	62	87	102	50	76	90	39	64	79	32	55
100-year	110	60	86	101	49	75	89	38	63	80	32	56

[9] From 1/1/1990-3/23/2004, 3 CIMIS stations: Seeley, Calipatria/Mulberry, Meloland; 3/24/2004-7/5/2009, 4 CIMIS stations (added Westmorland N.); 7/6/2009-12/1/2009, 3 CIMIS stations: Westmorland N. offline; 12/2/2009-2/31/2009, 4 CIMIS stations, Westmorland N. back online; 1/1/2010-9/20/2010.

Table 7 Monthly Mean Rainfall (In) – Imperial, CA 10-Year, 30-Year & 100-Year (2011-2020, 1991-2020, 1921-2020)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
10-year	0.33	0.26	0.22	0.12	0.08	0.01	0.22	0.30	0.28	0.02	0.26	0.42	2.44
30-year	0.50	0.43	0.31	0.09	0.06	0.00	0.14	0.19	0.26	0.15	0.22	0.40	2.70
100-year	0.39	0.38	0.25	0.11	0.03	0.00	0.12	0.33	0.36	0.25	0.21	0.51	2.79

Source: IID WIS: CIMIS stations polygon calculation (Data provided by IID staff).

Imperial Valley depends on the Colorado River for its water, which IID transports, untreated, to delivery gates for agricultural, municipal, industrial (including geothermal and solar energy), environmental (managed marsh), recreational (lakes), and other non-agricultural uses. IID supplies the cities, communities, institutions, and Golden State Water (which includes all or portions Calipatria, Niland, and some adjacent Imperial County territory) with untreated water that they treat to meet state and federal drinking water guidelines before distribution to their customers. Industries outside the municipal areas treat the water to required standards of their industry. To comply with U.S. Environmental Protection Agency (USEPA) requirements and avoid termination of canal water service, residents in the IID water service area who do not receive treated water service must obtain alternative water service for drinking and cooking from a state-approved provider. To avoid penalties that could exceed $25,000 a day, IID strictly enforces this rule. The IID Water Department tracks nearly 3,200 raw water service accounts required by the California Department of Public Health (CDPH) to have alternate state approved drinking water service. IID maintains a small-acreage pipe and drinking water database and provides an annual compliance update to CDPH.

IMPERIAL VALLEY HISTORIC AND FUTURE LAND AND WATER USES

Agricultural development in the Imperial Valley began at the turn of the twentieth century. In 2020, gross agricultural production for Imperial County was valued at $2,026,427,000

, of which an estimated $1,772,462,950 [10]was produced in the IID water service area.[11] While the agriculture-based economy is expected to continue, land use is projected to change somewhat over the years as industrial and/or alternative energy development and urbanization occur in rural areas and in areas adjacent to existing urban centers, respectively.

Brawley Solar Energy Facility, would benefit the Imperial Valley by way of supporting the goals of diversification of a growing renewable energy economy and supplying the State of California with additional renewable energy.

Imperial Valley's economy is gradually diversifying. Agriculture will likely continue to be the primary industry within the valley; however, two principal factors anticipated to reduce crop acreage are renewable energy (geothermal and solar) and urban development. Over the next twenty years, urbanization is expected to slightly decrease agriculture land use to provide space for an increase in residential, commercial and industrial uses. The transition from agricultural land use typically results in a net decrease in water demand for municipal, commercial, and solar energy development; and a net increase in water demand for geothermal energy development Local energy resources include geothermal, wind, biomass and solar. The County General Plan provides for development of energy production centers or energy parks within Imperial County. Alternative energy facilities will help California meet its statutory and regulatory goals for increasing renewable power generation and use and decrease water demands in Imperial County.

The IID Board has adopted the following policies and programs to address how to accommodate water demands under the terms of the Quantification Settlement Agreement and Related Agreements (QSA)/ Transfers Agreements and minimize potential negative impacts on agricultural water uses:

[10] IID Service Area Acre (not including Palo Verde Irrigation District and Yuma Project) 446,049/ 2019 Imperial County Crop Report Total Harvested Acres of 527,860 , Take Total Gross Value of $2,026,427,000 multiplied by .85 and multiply by 100 which equates to 1,772,462,950 to get the approximate value.

[11] 2020 Imperial County Crop and Livestock Report

Imperial Integrated Regional Water Management Plan: adopted by the board on December 18, 2012, and by the County, the City of Imperial, to meet the basic requirement of California Department of Water Resources (CDWR) for an IRWM plan. In all, 14 local agencies adopted the 2012 Imperial IRWMP.

Interim Water Supply Policy for Non-Agricultural Projects: adopted by the board on September 29, 2009, to ensure sufficient water will be available for new development, in particular, anticipated renewable energy projects until the board selects and implements capital development projects such as those considered in the Imperial IRWMP.

Temporary Land Conversion Fallowing Policy: adopted by the board on May 8, 2012, and revised on March 29, 2016, to provide a framework for a temporary, long-term fallowing program to work in concert with the IWSP and IID's coordinated land use/water supply strategy.

Equitable Distribution Plan: adopted by the board on October 28, 2013, to provide a mechanism for IID to administer apportionment of the district's quantified annual supply of Colorado River water; IID board approved a resolution repealing the Equitable Distribution Plan (EDP) on February 6, 2018. A revised EDP is anticipated to be adopted in 2022.

In addition, water users within the IID service area are subject to the statewide requirement of reasonable and beneficial use of water under the California Constitution, Article X, section 2.

IMPERIAL INTEGRATED REGIONAL WATER MANAGEMENT PLAN (OCTOBER 2012)

The Imperial Integrated Regional Water Management Plan (IRWMP) serves as the governing document for regional water planning to meet present and future water resource needs and demands by addressing such issues as additional water supply options, demand management and determination and prioritization of uses and classes of service provided. In November 2012, the Imperial County Board of Supervisors approved the Imperial IRWMP, and the City of Imperial City Council and the IID Board of Directors approved it in December 2012. Approval by these three (3) stakeholders meets the basic requirement of California Department of Water Resources (CDWR) for an IRWMP. Through the IRWMP process, IID presented to the region stakeholders options in the event long-term water supply augmentation is needed, such as water storage and banking, recycling of municipal wastewater, and desalination of brackish water.[12] As discussed herein, long term water supply augmentation is not anticipated to be necessary to meet proposed Project demands.

Chapter 5 of the 2012 Imperial IRWMP addresses water supplies (Colorado River and groundwater), demand, baseline and forecasted through 2050; and IID water budget. Chapter 12 addresses projects, programs and policies, and funding alternatives. Chapter 12 of the IRMWP lists, and Appendix N details, a set of capital projects that IID might pursue, including the amount of water that might result (AFY) and cost ($/AF) if necessary. These also highlight potential capital improvement projects that could be implemented in the future.

Imperial Valley historic 2015 and 2020 and the forecasted future for 2025 to 2055 non-agricultural water demand, are provided in Table 8 in five-year increments. Total water demand for non-agricultural uses is projected to be 201.4 KAF in the year 2055. This is a forecasted increase in the use of non-agricultural water from 107.4 KAF for the period of 2015 to 2055.[13] These values were modified from Chapter 5 of the Imperial IRWMP to reflect updated conditions from the IID Provisional Water Balance for calendar year 2015 and 2020. Due to the recession in 2009 and

[12] October 2012 Imperial Integrated Regional Water Management Plan, Chapter 12.
[13] Wistaria Solar Ranch, Final Environmental Impact Report, December 2014

other factors, non-agricultural growth projections have lessened since the 2012 Imperial IRWMP. Projections in Table 8 have been adjusted (reduced by 3%) to reflect IID 2015 and 2020 delivery data adjustments. Even with these adjustments, the Table 8 projections for non-agricultural water demand within the IID water service area continue to reflect an unlikely aggressive growth.

Table 8: Non-Agricultural Water Demand within IID Water Service Area, 2015-2055 (KAFY)

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Municipal	30.0	30.9	36.8	39.8	41.5	46.3	51.7	57.8	61.9
Industrial	26.4	26.0	39.8	46.5	53.2	59.9	66.6	73.3	80.0
Other	5.5	6.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Feedlots/Dairies	17.8	19.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Envr Resources	8.3	9.2	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Recreation	7.4	9.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Service Pipes	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Non Ag	**107.4**	**113.1**	**136.1**	**145.8**	**154.2**	**165.7**	**177.8**	**190.6**	**201.4**

Notes: 2015 non-agricultural water demands are from IID 2015 Provisional Water Balance rerun 03/28/2019 2020-2055 demands are modified from 2012 Imperial IRWMP Chapter 5, Table 5-22 p 5-50 based on IID 2015 Provisional Water Balance. 2020 non-agricultural water demands are from IID2020 Provisional Water Balance rerun on 01/25/2021 2025-2055 demands are modified from 2012 Imperial IRWMP Chapter 5, Table 5-22 P5-50 based on IID 2020 Provisional Water Balance. Industrial Demand includes geothermal, but not solar, energy production.

Agricultural evapotranspiration (ET) demand of approximately 1,476.4 KAF in 2015, decreased in 2020 to around 1,442.2 KAF. The termination of fallowing programs provided 103.5 KAF of water for Salton Sea mitigation in 2017. Forecasted agricultural ET remains constant, as reductions in water use are to come from efficiency conservation not reduction in agricultural production. Market forces and other factors may impact forecasted future water demand.

Table 9 provides the 2015 and 2020 historic and 2025-2055 forecasted agricultural consumptive use and delivery demand within the IID water service area. When accounting for agriculture ET, tailwater and tilewater, total agricultural consumptive use (CU) demand ranges from 2,157.9 KAF in 2015 to 2,208.5 KAF in 2055. Forecasted total agricultural delivery demand is around 1 KAFY higher than the CU demand, ranging from 2,158.9 KAF in 2015 to 2,209.5 KAF in 2055.

Table 9: Historic and forecasted Agricultural Water Consumptive Use and Delivery Demand within IID Water Service Area, 2015-2055 (KAFY)

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Ag ET from Delivered & Stored Soil Water	1,476.4	1,442.2	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5
Ag Tailwater to Salton Sea	282.9	312.9	268.0	218.0	218.0	218.0	218.0	218.0	218.0
Ag Tilewater to Salton Sea	398.6	410.2	423.0	423.0	423.0	423.0	423.0	423.0	423.0
Total Ag CU Demand	**2,157.9**	**2,165.4**	**2,258.5**	**2,208.5**	**2,208.5**	**2,208.5**	**2,208.5**	**2,208.5**	**2,208.5**
Subsurface Flow to Salton Sea	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
Total Ag Delivery Demand	**2,158.9**	**2,166.4**	**2,259.5**	**2,209.5**	**2,209.5**	**2,209.5**	**2,209.5**	**2,209.5**	**2,209.5**

Notes: 2015 record from IID 2015 Provisional Water Balance rerun 06/28/2019; 2020-2055 forecasts from spreadsheet used to develop Figure 19, et seq. in Imperial IRWMP Chapter 5 (Data provided by IID staff).

In addition to agricultural and non-agricultural water demands, system operational demands must be included to account for operational discharge, main and lateral canal seepage; and for All American Canal (AAC) seepage, river evaporation and phreatophyte ET from Imperial Dam to IID's measurement site at AAC Mesa Lateral 5. These system operation demands are shown in ***Table 10***. IID measures system operational uses and at All-American Canal Station 2900 just upstream of Mesa Lateral 5 Heading. Total system operational use for 2020 was 167 KAF, including 10 KAF of LCWSP input, 39.8 KAF of seepage interception input, and 40 KAF of unaccounted canal water input.

Table 10 IID System Operations Consumptive Use within IID Water Service Area and from AAC at Mesa Lateral 5 to Imperial Dam, (KAF), 2020

Delivery System Evaporation	24.4
Canal Seepage	90.8
Canal Spill	10.1
Lateral Spill	121.5
Seepage Interception	-39.0
Unaccounted Canal Water	-40.0
Total System Operational Use, In valley	**167.8**
Imperial Dam to AAC @ Mesa Lat 5 (Dam-Mesa Lat 5)	9.2
LCWSP	-10
Total System Operational Use in 2020	**167.0**
*Source: 2020 IID Water Balance rerun 0*1/25/2021	

IID INTERIM WATER SUPPLY POLICY FOR NON-AGRICULTURAL PROJECTS (SEPTEMBER 2009)

The IID IWSP provides a mechanism to address water supply requests for projects being developed within the IID service area. The IWSP designates up to 25,000 AFY of IID's annual Colorado River water supply for new non-agricultural projects, provides a mechanism and process to develop a water supply agreement for any appropriately permitted project, and establishes a framework and set of fees to ensure the supplies used to meet new demands do not adversely affect existing users by funding water conservation or augmentation projects as needed. [14]

Depending on the nature, complexity and water demands of the proposed project, new projects may be charged a one-time Reservation Fee and an annual Water Supply Development Fee for the contracted water volume used solely to assist in funding new water supply projects. The applicability of the fee to certain projects will be determined by IID on a case-by-case basis, depending on the proportion of types of land uses and water demand proposed for a project. The 2021 fee schedule is shown in Table 11.

Table 11 Interim Water Supply Policy 2021 Annual Non-Agricultural Water Supply Development Fee Schedule

Annual Demand (AF)	Reservation Fee ($/AF)*	Development Fee ($/AF)*
0-500	$75.40	$301.59
501-1000	$106.16	$424.64
1001-2500	$133.30	$533.22
2501-5000	$164.67	$658.68

Adjusted annually in accordance with the Consumer Price Index (CPI).

IID customers with new projects receiving water under the IWSP will be charged the appropriate water rate based on measured deliveries, see **IID Water Rate Schedules**. As of September 2021, IID has issued one Water Supply Agreement for 1,200 AFY, leaving a balance of 23,800 AFY of supply available for contracting under the IWSP.

[14] *IID website: Municipal, Industrial and Commercial Customers.*

IID Temporary Land Conversion Fallowing Policy (May 2012)

Imperial County planning officials determined that renewable energy facilities were consistent with the county's agricultural zoning designation and began issuing CUPs for these projects with ten- to twenty-year terms. These longer-term, but temporary, land use designations were not conducive to a coordinated land use/water supply policy as envisioned in the Imperial IRWMP, because temporary water supply assignments during a conditional use permit (CUP) term were not sufficient to meet the water supply verification requirements for new project approvals. Agricultural landowners also sought long-term assurances from IID that, at project termination, irrigation service would be available for them to resume their farming operations.

Based on these conditions, IID determined it had to develop a water supply policy that conformed to the local land use decision-making in order to facilitate new development and economic diversity in Imperial County which has resulted in the IID Temporary Land Conversion Fallowing Policy (TLCFP).[15] IID concluded that certain lower water use projects could still provide benefits to local water users. The resulting benefits; however, may not be to the same categories of use (e.g., MCI) but to the district as a whole.

At the general manager's direction, staff developed a framework for a fallowing program that could be used to supplement the IWSP and meet the multiple policy objectives envisioned for the coordinated land use/water supply strategy. Certain private projects that, if implemented, will temporarily remove land from agricultural production within the district's water service area include renewable solar energy and other non-agricultural projects. Such projects may need a short-term water supply for construction and decommissioning activities and longer-term water service for facility operation and maintenance or for treating to potable water standards. Conserved water will be credited to the extent that water use for the project is less than historic water use for the project site's footprint as determined by the ten year water use history.[16]

[15] *IID website: Temporary Land Conversion Fallowing Policy (TLCFP), and The TLCFP are the sources of the text for this section.*

[16] For details of how water conservation yield attributable to land removed from agricultural production and temporarily fallowed is computed, see TLCFP for Water Conservation Yield.

Water demands for certain non-agricultural projects are typically less than that required for agricultural production; this reduced demand allows water to be made available for other users under IID's annual consumptive use cap. This allows the district to avail itself of the ability during the term of the QSA/Transfer Agreements under CWC Section 1013 to create conserved water through projects such as temporary land fallowing conservation measures. This conserved water can then be used to satisfy the district's conserved water transfer obligation and for environmental mitigation purposes.

Under the terms of the legislation adopted to facilitate the QSA/Transfer Agreements and enacted in CWC Section 1013, the TLCFP was adopted by the IID board on May 8, 2012 and revised on March 29, 2016 to update the fee schedule for 2016. This policy provides a framework for a temporary, long-term fallowing program to work in concert with the IWSP. While conserved water generated from the TLCFP is limited by law for use for water transfer or environmental purposes, by satisfying multiple district objectives the TLCFP serves to reduce efficiency conservation and water use reduction demands on IID water users, thus providing district wide benefits.

IMPERIAL IRRIGATION DISTRICT'S WATER RIGHTS

The laws and regulations that influence IID's water supply are noted in this section. The Law of the River (as described below), along with the 2003 Quantification Settlement Agreement and Related Agreements serve as the laws, regulations and agreements that primarily influence the findings of this WSA. These agreements grant California the most senior water rights along the Colorado River and IID specify that IID has access to 3.1 MAF per year. These two components will influence future decisions in terms of water supply during periods of shortages.

CALIFORNIA LAW

IID's has a longstanding right to divert Colorado River water, and IID holds legal titles to all of its water and water rights in trust for landowners within the district (CWC §20529 and §22437; *Bryant v. Yellen*, 447 U.S. 352, 371 (1980), fn.23.). Beginning in 1885, a number of individuals, as well as the California Development Company, made a series of appropriations of Colorado River water under California law for use in the Imperial Valley. The rights to these appropriations were among the properties acquired by IID from the California Development Company.

LAW OF THE RIVER

Colorado River water rights are governed by numerous compacts, state and federal laws, court decisions and decrees, contracts, and regulatory guidelines collectively known as the "Law of the River." Together, these documents form the basis for allocation of the water, regulation of land use, and management of the Colorado River water supply among the seven basin states and Mexico.

Of all regulatory literature that governs Colorado River water rights, the following are the specifics that impact IID:

- Colorado River Compact (1922)
- Boulder Canyon Project Act (1928)
- California Seven-Party Agreement (1931)
- Arizona v. California US Supreme Court Decision (1964, 1979)
- Colorado River Basin Project Act (1968)
- Quantification Settlement Agreement and Related Agreements (2003)
- 2003 Colorado River Water Delivery Agreement: Federal QSA for purposes of Section 5(b) Interim Surplus Guidelines (CRWDA)
- 1970 Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs
- Annual Operating Plan (AOP) for Colorado River Reservoirs
- 2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead (2007 Interim Guidelines)

COLORADO RIVER COMPACT (1922)

With authorization of their legislatures and urging of the federal government, representatives from the seven Colorado River basin states began negotiations regarding distribution of water from the Colorado River in 1921. In November 1922, an interstate agreement called the "Colorado River Compact" was signed by the representatives giving the Lower Basin perpetual rights to annual

apportionments of 7.5 million acre-feet (MAF) of Colorado River water (75 MAF over ten years). The Upper Basin was to receive the remainder, which based on the available hydrological record was also expected to be 7.5 MAF annually, with enough left over to provide 1.5 MAF annually to Mexico.

BOULDER CANYON PROJECT ACT (1928)

Provisions in the 1928 Boulder Canyon Project Act made the compact effective and authorized construction of Hoover Dam and the All-American Canal, and served as the United States' consent to accept the Compact. Through a Presidential Proclamation on June 25, 1929, this act resulted in ratification of the Compact by six of the basin states and required California to limit its annual consumptive use to 4.4 MAF of the lower basin's apportionment plus not less than half of any excess or surplus water unportioned by the Compact. A lawsuit was filed by the State of Arizona after its refusal to sign. Through the implementation of its 1929 Limitation Act, California abided by this federal mandate. The Boulder Canyon Act authorized the Secretary of the Interior (Secretary) to "contract for the storage of water… and for the delivery thereof… for irrigation and domestic uses," and additionally defined the lower basin's 7.5 MAF apportionment split, with an annual allocation 0.3 MAF to Nevada, 2.8 MAF to Arizona, and 4.4 MAF to California. Even though the three states never formally settled or agreed to these terms, a 1964 Supreme Court decision (*Arizona v. California*, 373 U.S. 546) declared the three states' consent to be insignificant since the Boulder Canyon Project Act was authorized by the Secretary.

CALIFORNIA SEVEN-PARTY-AGREEMENT (1931)

Following implementation of the Boulder Canyon Project Act, the Secretary requested that California make recommendations regarding distribution of its apportionment of Colorado River water. In August 1931, under chairmanship of the State Engineer, the California Seven-Party Agreement was developed and authorized by the affected parties to prioritize California water rights. The Secretary accepted this agreement and established these priorities through General Regulations issued in September of 1931. The first four (4) priority allocations account for California's annual apportionment of 4.4 MAF, with agricultural entities using 3.85 MAF of that

total. Additional priorities are defined for years in which the Secretary declares that excess waters are available.

ARIZONA V. CALIFORNIA U.S. SUPREME COURT DECISION (1964, 1979)

The 1964 Supreme Court decision settled a 25-year disagreement between Arizona and California that stemmed from Arizona's desire to build the Central Arizona Project to enable use of its full apportionment. California's argument was that as Arizona used water from the Gila River, which is a Colorado River tributary, it was using a portion of its annual Colorado River apportionment. An additional argument from California was that it had developed a historical use of some of Arizona's apportionment, which, under the doctrine of prior appropriation, precluded Arizona from developing the project. California's arguments were rejected by the U.S. Supreme Court. Under direction of the Supreme Court, the Secretary was restricted from delivering water outside of the framework of apportionments defined by law. Preparation of annual reports documenting consumptive use of water in the three lower basin states was also mandated by the Supreme Court. In 1979, present perfected water rights (PPRs) referred to in the Colorado River Compact and in the Boulder Canyon Project Act were addressed by the Supreme Court in the form of a Supplemental Decree.

In March of 2006, a Consolidated Decree was issued by the Supreme Court to provide a single reference to the conditions of the original 1964 decrees and several additional decrees in 1966, 1979, 1984 and 2000 that stemmed from the original ruling. The Consolidated Decree also reflects the settlements of the federal reserved water rights claim for the Fort Yuma Indian Reservation.

COLORADO RIVER BASIN PROJECT ACT (1968)

In 1968, various water development projects in both the upper and lower basins, including the Central Arizona Project (CAP) were authorized by Congress. Under the Colorado River Basin Project Act, priority was given to California's apportionment over (before) the CAP water supply in times of shortage. Also under the act, the Secretary was directed to prepare long-range criteria for the Colorado River reservoir system in consultation with the Colorado River Basin States.

QUANTIFICATION SETTLEMENT AGREEMENT AND RELATED AGREEMENTS (2003)

With completion of a large portion of the CAP infrastructure in 1994, creation of the Arizona Water Banking Authority in 1995, and the growth of Las Vegas in the 1990s, California encountered increasing pressure to live within its rights under the Law of the River. After years of negotiating among Colorado River Compact States and affected California water delivery agencies, a QSA and Related Agreements and documents were signed on October 10, 2003, by the Secretary of Interior, IID, Coachella Valley Water District (CVWD), Metropolitan Water District of Southern California (MWD), San Diego County Water Authority (SDCWA), and other affected parties.

The Quantification Settlement Agreement and Related Agreements (QSA/Transfer Agreements) are a set of interrelated contracts that resolve certain disputes among the United States, the State of California, IID, MWD, CVWD and SDCWA, for a period of 35 to 75 years, regarding the reasonable and beneficial use of Colorado River water; the ability to conserve, transfer and acquire conserved Colorado River water; the quantification and priority of Priorities 3(a) and 6(a)[17] within California for use of Colorado River water; and the obligation to implement and fund environmental impact mitigation.

Conserved water transfer agreements between IID and SDCWA, IID and CVWD, and IID and MWD are all part of the QSA/Transfer Agreements. For IID, these contracts identify conserved water volumes and establish transfer schedules along with price and payment terms. As specified in the agreements, IID will transfer nearly 415,000 AF annually over a 35-year period (or loner), as follows:

- to MWD 110,000 AF [modified to 105,000 AF in 2007],
- to SDCWA 200,000 AF,
- to CVWD and MWD combined 103,000 AF, and
- to certain San Luis Rey Indian Tribes 11,500 AFY of water.

[17] *Priorities 1, 2, 3(b), 6(b), and 7 of current Section 5 Contracts for the delivery of Colorado River water in the State of California and Indian and miscellaneous Present Perfected Rights within the State of California and other existing surplus water contracts are not affected by the QSA Agreement.*

All of the conserved water will ultimately come from IID system and on-farm efficiency conservation improvements. In the interim, IID has implemented a Fallowing Program to generate water associated with Salton Sea mitigation related to the impacts of the IID/SDCWA water transfer, as required by the State Water Resources Control Board, which ran from 2003 through 2017. In return for its QSA/Transfer Agreements programs and deliveries, IID will receive payments totaling billions of dollars to fund needed efficiency conservation measures and to pay growers for conserved on-farm water, so IID can transfer nearly 14.5 MAF of water without impacting local productivity. In addition, IID will transfer to SDCWA 67,700 AFY annually of water conserved from the lining of the AAC in exchange for payment of lining project costs and a grant to IID of certain rights to use the conserved water. In addition to the 105,000 acre-feet of water currently being conserved under the 1988 IID/MWD Conservation Program, these more recent agreements define an additional 303,000 AFY to be conserved by IID from on-farm and distribution system conservation projects for transferred to SDCWA, CVWD, and MWD.

COLORADO RIVER WATER DELIVERY AGREEMENT (2003) [18]

As part of QSA/Transfer Agreements among California and federal agencies, the Colorado River Water Delivery Agreement (CRWDA): Federal QSA for purposes of Section 5(b) Interim Surplus Guidelines was entered into by the Secretary of the Interior, IID, CVWD, MWD and SDCWA. This agreement involves the federal government because of the change in place of diversion from Imperial Dam into the All-American Canal to Parker Dam into MWD's Colorado River Aqueduct.

The CRWDA assists California to meet its "4.4 Plan" goals by quantifying deliveries for a specific number of years for certain Colorado River entitlements so transfers may occur. In particular, for the term of the CRWDA, quantification of Priority 3(a) was affected through caps on water deliveries to IID (consumptive use of 3.1 MAF per year) and CVWD (consumptive use of 330 KAF per year). In addition, California's Priority 3(a) apportionment between IID and CVWD, with provisions for transfer of supplies involving IID, CVWD, MWD and SDCWA are quantified in the CRWDA for a period of 35 years or 45 years (assumes SDCWA does not terminate in year 35) or 75 years (assumes SDCWA and IID mutually consent to renewal term of 30 years).

[18] *CRWDA: Federal QSA accessed 7 June 2017.*

Allocations for consumptive use of Colorado River water by IID, CVWD and MWD that will enable California to stay within its basic annual apportionment (4.4 MAF plus not less than half of any declared surplus) are defined by the terms of the QSA/Transfer Agreements (**Table 12**). As specified in the QSA/Transfer Agreements, by 2026, IID annual use within (Imperial Valley) is to be reduced to just over 2.6 MAF of its 3.1 MAF quantified annual apportionment. The remaining nearly 500,000 AF (which includes the 67,000 AF from AAC lining) are to be transferred annually to urban water users outside of the Imperial Valley.

Table 12 CRWDA Annual 4.4 MAF Apportionment (Priorities 1 to 4) for California Agencies (AFY)

User	Apportionment (AFY)
Palo Verde Irrigation District and Yuma Project*	420,000
Imperial Irrigation District	3,100,000
Coachella Valley Water District	330,000
Metropolitan Water District of Southern California*	550,000
Total:	4,400,000

* PVID and Yuma Project did not agree to a cap; value represents a contractual obligation by MWD to assume responsibility for any overages or be credited with any volume below this value.
Notes: All values are consumptive use at point of Colorado River diversion: Palo Verde Diversion Dam (PVID), Imperial Dam (IID and CVWD), and Parker Dam (MWD). Source: IID Annual Water Report

Quantification of Priority 6(a) was effected through quantifying annual consumptive use amounts to be made available in order of priority to MWD (38 KAF), IID (63 KAF), and CVWD (119 KAF) with the provision that any additional water available to Priority 6(a) be delivered under IID's and CVWD's existing water delivery contract with the Secretary.[19] The CRWDA provides that the underlying water delivery contract with the Secretary remain in full force and effect (*Colorado River Documents 2008*, Chapter 6, pages 6-12 and 6-13). The CRWDA also provides a source of water to effect a San Luis Rey Indian Water rights settlement. Additionally, the CRWDA satisfies the requirement of the 2001 Interim Surplus Guidelines (ISG) that a QSA be adopted as a prerequisite to the interim surplus determination by the Secretary in the ISG.

INADVERTENT OVERRUN PAYBACK POLICY (2003)

The CRWDA Inadvertent Overrun Payback Policy (IOPP), adopted by the Secretary contemporaneously with the execution of the CRWDA, provides additional flexibility to Colorado

[19] When water levels in the Colorado River reservoirs are low, Priority 5, 6 and 7 apportionments are not available for diversion.

River management and applies to entitlement holders in the Lower Division States **(Arizona, California and Nevada)**.[20] The IOPP defines inadvertent overruns as "Colorado River water diverted, pumped, or received by an entitlement holder of the Lower Division States that is in excess of the water users' entitlement for the year." An entitlement holder is allowed a maximum overrun of 10 percent (10%) of its Colorado River water entitlement.

In the event of an overrun, the IOPP provides a mechanism to payback the overrun. When the Secretary has declared a normal year for Colorado River diversions, a contractor has from one to three years to pay back its obligation, with a minimum annual payback equal to 20 percent of the entitlement holder's maximum allowable cumulative overrun account or 33.3 percent of the total account balance, whichever is greater. However, when Lake Mead is below 1125 feet on January 1, the terms of the IOPP require that the payment of the inadvertent overrun obligation be made in the calendar year after the overrun is reported in the USBR Lower Colorado Region Colorado River Accounting and Water Use Report [for] Arizona, California, and Nevada (Decree Accounting Report)..[21]

1970 CRITERIA FOR COORDINATED LONG-RANGE OPERATION OF COLORADO RIVER RESERVOIRS

The 1970 Operating Criteria control operation of the Colorado River reservoirs in compliance with requirements set forth in the Colorado River Compact of 1922, the United States-Mexico Water Treaty of 1944, the Colorado River Storage Project Act of 1956, the Boulder Canyon Projects Act (Lake Mead) and the Colorado River Basin Project Act (Upper Basin Reservoirs) of 1968, and other applicable federal laws. Under these Operating Criteria, the Secretary makes annual determinations published in the USBR Annual Operating Plan for Colorado River Reservoirs (discussed below) regarding the release of Colorado River water for deliveries to the lower basin states. A requirement to equalize active storage between Lake Powell and Lake Mead when there

[20] *USBR, 2003 CRWDA ROD Implementation Agreement, IOPP and Related Federal Actions Final EIS. Section IX. Implementing the Decision A. Inadvertent Overrun and Payback Policy. Pages 16-19 of 34.*
[21] *2003 CRWDA ROD. Section IX. A.6.c,, page 18 of 34.*

is sufficient storage in the Upper Basin is included in these operating criteria. **Figure 5** identifies the major storage facilities at the upper and lower basin boundaries.

ANNUAL OPERATING PLAN FOR COLORADO RIVER RESERVOIRS (Applicable Only if Lake Mead has Surplus/Shortage)

The AOP is developed in accordance with Section 602 of the Colorado River Basin Project Act (Public Law 90-537); the Criteria for Coordinated Long-Range Operations of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of 1968, as amended, promulgated by the Secretary of the Interior; and Section 1804(c)(3) of the Grand Canyon Protection Act (Public Law 102-575). As part of the AOP process, the Secretary makes determinations regarding the availability of Colorado River water for deliveries to the lower basin states, including whether normal, surplus, and shortage conditions are in effect on the lower portion of the Colorado River.

2007 COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES (2007 INTERIM GUIDELINES)

A multi-year drought in the Colorado River Upper Basin triggered the need for the 2007 Interim Shortage Guidelines. In the summer of 1999, Lake Powell was essentially full with reservoir storage at 97 percent of capacity. However, precipitation fell off starting in October 1999 and 2002 inflow was the lowest recorded since Lake Powell began filling in 1963.[22],[23] By August 2011, inflow was 279 percent (279%) of average; however, drought resumed in 2012 and continued through calendar year 2020. Using the record in **Table 13,** average unregulated inflow to Lake Powell for water years 2000-2020 is 0.733 percent (73%); or if 2011 is excluded, 0.7015 percent (70%) of the historic average, see Table 13.

Table 13: Unregulated Inflow to Lake Powell, Percent of Historic Average, 2000-2020

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
62%	59%	25%	51%	49%	105%	73%	68%	102%	88%	73%
2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	
136%	35%	49%	90%	83%	80%	101%	36%	120%	54%	

Source UCR Water Operations: Historic Data (2000-2020)

[22] Water Year: October 1 through September 30 of following year, so water year ending September 30, 1999
[23] Drought in the Upper Colorado River Basin. August 2011

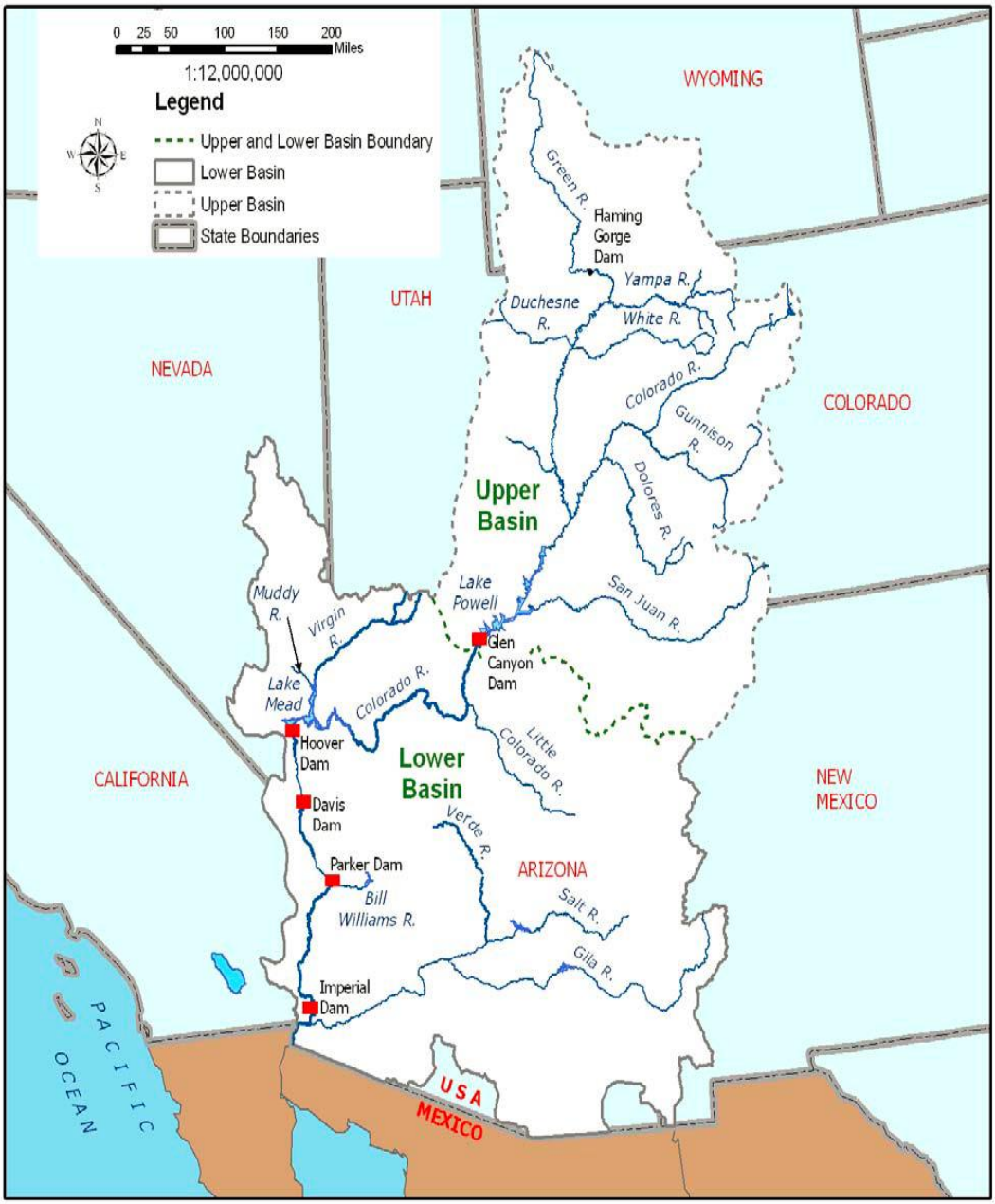


Figure 5 Major Colorado River Reservoir Storage Facilities and Basin Location Map

Source: Final EIS – Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, Volume 1 Chapter 1 Purpose and Need , p I-10.

In the midst of the drought period, USBR developed 2007 Interim Guidelines with consensus from the seven basin states, which selected the Draft EIS Preferred Alternative as the basis for USBR's final determination. The basin states found the Preferred Alternative best met all aspects of the purpose and need for the federal action.[24]

The 2007 interim Guidelines Preferred Alternative highlights the following:

1. The need for the Interim Guidelines to remain in place for an extended period of time.
2. The desirability of the Preferred Alternative based on the facilitated consensus recommendation from the basin states.
3. The likely durability of the mechanisms adopted in the Preferred Alternative in light of the extraordinary efforts that the basin states and water users have undertaken to develop implementing agreements that will facilitate the water management tools (shortage sharing, forbearance, and conservation efforts) identified in the Preferred Alternative
4. That the range of elements in the Preferred Alternative will enhance the Secretary's ability to manage the Colorado River reservoirs in a manner that recognizes the inherent tradeoffs between water delivery and water storage.

In June 2007, USBR announced that a preferred alternative for Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations of Lake Powell and Lake Mead (Final Preferred Alternative) had been determined. The Final Preferred Alternative, based on the basin states' consensus alternative and an alternative submitted by the environmental interests called "Conservation Before Shortage," is comprised of four key operational elements which are to guide operations of Lake Powell and Lake Mead through 2026 are:

1. Shortage strategy for Lake Mead and Lower Division states: The Preferred Alternative proposed discrete levels of shortage volumes associated with Lake Mead elevations to conserve reservoir storage and provide water users and managers in the Lower Basin with

[24] USBR *Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead* <http://www.usbr.gov/lc/region/programs/strategies.html>

greater certainty to know when, and by how much, water deliveries will be reduced during low reservoir conditions.

2. Coordinated operations of Lake Powell and Lake Mead: The Preferred Alternative proposed a fully coordinated operation of the reservoirs to minimize shortages in the Lower Basin and to avoid risk of curtailments of water use in the Upper Basin.
3. Mechanism for storage and delivery of conserved water in Lake Mead: The Preferred Alternative proposed the Intentionally Created Surplus (ICS) mechanism to provide for the creation, accounting, and delivery of conserved system and non-system water thereby promoting water conservation in the Lower Basin. Credits for Colorado River or non-Colorado River water that has been conserved by users in the Lower Basin creating an ICS would be made available for release from Lake Mead at a later time. The total amount of credits would be 2.1 MAF, but this amount could be increased up to 4.2 MAF in future years.
4. Modifying and extending elements of the Interim Surplus Guidelines (ISG). The ISG determines conditions under which surplus water is made available for use within the Lower Division states. These modifications eliminate the most liberal surplus conditions thereby leaving more water in storage to reduce the severity of future shortages.

With respect to the various interests, positions and views of the seven basin states, this provision adds an important element to the evolution of the legal framework for prudent management of the Colorado River. Furthermore, the coordinated operation element allows for adjustment of Lake Powell releases to respond to low reservoir storage conditions in either Lake Powell or Lake Mead.[25] States found the Preferred Alternative best met all aspects of the purpose and need for the federal action.[26] The 2007 Interim Guidelines are in place from 2008 through December 31, 2025 (through preparation of the 2026 Annual Operating Plan).

[25] *For a discussion of the 2007 Interim Guidelines, see: Intermountain West Climate Summary by The Western Water Assessment, issued Jan. 21, 2008, Vol. 5, Issue 1, January 2009 Climate Summary, Feature Article, pages 5-7, 22 Mar 2013.*

[26] *USBR Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead.*

LOWER COLORADO REGION WATER SHORTAGE OPERATIONS

The drought in the Colorado River watershed has continued through 2021 despite an increase in observed runoff in August 2011 when unregulated inflow to Lake Powell was 279 percent of the average. Since 2000, Lake Mead has been below the "average" level of lake elevations (see **Figure 6**). Such conditions have caused the preparation of shortage plans for waters users in Arizona and Nevada, and in Mexico.

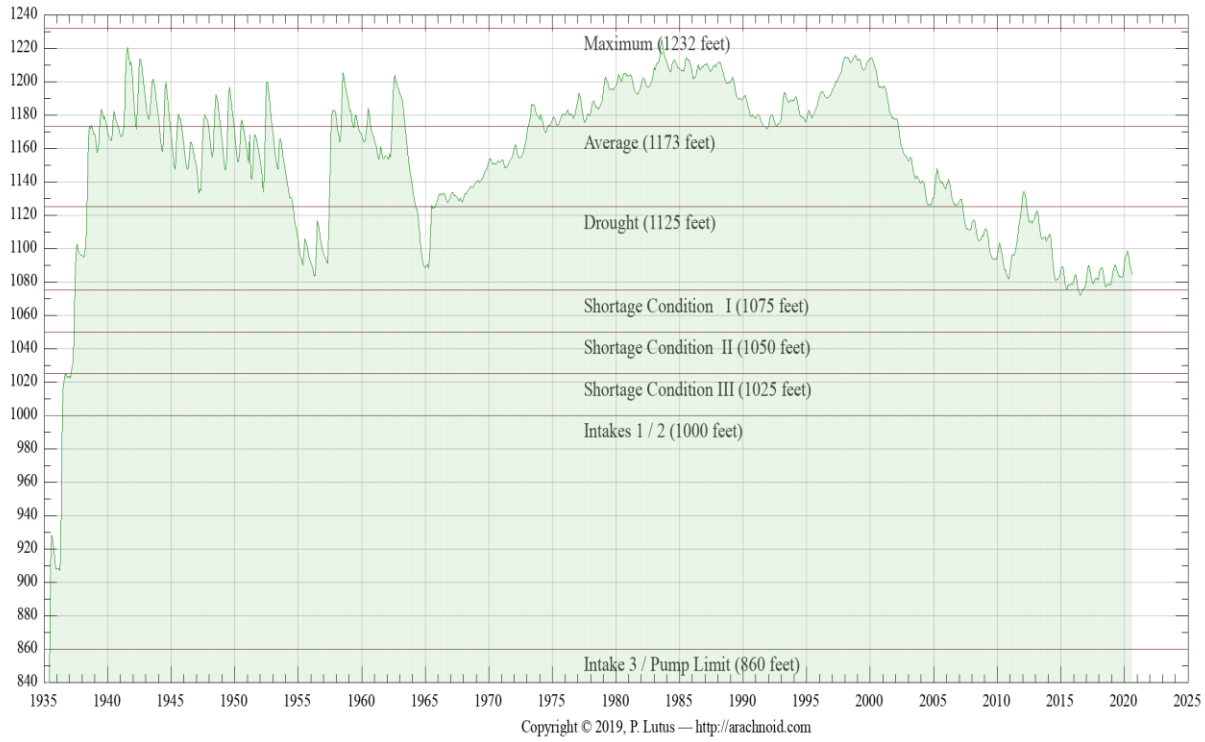


Figure 6: Lake Mead Water Elevation Levels 2020

visit<http://www.arachnoid.com/NaturalResources/index.html>

According to guidelines put in place in 2007, Arizona and Nevada begin to take shortages when the water elevation in Lake Mead falls below 1,075 feet. The volumes of shortages increase as water levels fall to 1,050 feet and again at 1,025 feet. In 2012, Mexico agreed to participate in a 5-year pilot agreement to share specific volumes of shortages at the same elevations. The 2007 interim shortage guidelines contain no reductions for California, which has senior water rights to the Central Arizona Project water supply, through 2025 when the guidelines expire. If Lake Mead's elevation drops to 1,025 feet, a re-consultation process would be triggered among the basin states

to address next steps. Consultation would start out within each state, then move to the three lower basin states, followed by all seven states and the USBR. Mexico will then be brought into the process unless they choose to participate earlier.

IMPERIAL IRRIGATION DISTRICT WATER SUPPLY AND DEMAND

SB 610 requires an analysis of a normal, single dry, and multiple dry water years to show that adequate water is available for the proposed Project in various climate scenarios for at minimum 20 years. Water availability for this Project in a normal year is no different from water availability during a single-dry and multiple-dry year scenarios. This is due to the small effect rainfall has on water availability in IID's arid environment along with IID's strong entitlements to the Colorado River water supply. Local rainfall does have some impact on how much water is consumed (i.e., if rain falls on agricultural lands, those lands will not demand as much irrigation), but does not impact the definition of a normal year, a single-dry year or a multiple-dry year scenario.

WATER AVAILABILITY – NORMAL YEAR

IID is entitled to annual net consumptive use of 3.1 MAF of Colorado River, less its QSA/Transfer Agreement obligations. Imperial Dam, located north of Yuma, Arizona, serves as a diversion structure for water deliveries throughout southeastern California, Arizona and Mexico. Water is transported to the IID water service area through the AAC for use throughout the Imperial Valley. IID historic and forecast net consumptive use volumes at Imperial Dam from CRWDA Exhibit B are shown in Table 14. Volumes for 2003-2020 are adjusted for USBR Decree Accounting historic records. Volumes for 2021-2077 are from CRWDA Exhibit B modified to reflect 2014 Letter Agreement changes to the 1988 IID/MWD Water Conservation Agreement.[27]

[27] 2014 Imperial Irrigation District Letter Agreement for Substitution and Conservation Modifications to the IID/MWD Water Conservation Agreement - December 17, 2014.

Table 14 IID Historic and Forecast Net Consumptive Use for Normal Year, Single-Dry Year and Multiple-Dry Year Water Supply, 2003-2037, et seq. (CRWDA Exhibit B)

IID Quantification and Transfers, Volumes in KAF at Imperial Dam [1]										
Col 1	2	3	4	5	6	7	8	9	10	11
	IID Priority 3(a)									
		IID Reductions								IID Net [Available for] Consumptive Use (Col 2 - 10)
Year	IID 3(a) Quantified Amount	1988 MWD Transfer [2]	SDCWA Transfer	AAC Lining	Salton Sea Mitigation SDCWA Transfer [3]	Intra-Priority 3 CVWD Transfer	MWD Transfer w\ Salton Sea Restoration [4]	Misc. PPRs	IID Total Reduction (Σ Cols 3-9) [5]	
2003	3,100	105.1	10.0	0.0	0.0	0.0	0.0	11.5	126.6	2978.2
2004	3,100	101.9	20.0	0.0	15.0	0.0	0.0	11.5	148.4	2743.9
2005	3,100	101.9	30.0	0.0	15.0	0.0	0.0	11.5	158.4	2756.8
2006	3,100	101.2	40.0	0.0	20.0	0.0	0.0	11.5	172.7	2909.7
2007	3,100	105.0	50.0	0.0	25.0	0.0	0.0	11.5	191.5	2872.8
2008	3,100	105.0	50.0	8.9	26.0	4.0	0.0	11.5	205.4	2825.1
2009	3,100	105.0	60.0	65.5	30.1	8.0	0.0	11.5	280.1	2566.7
2010	3,100	105.0	70.0	67.7	33.8	12.0	0.0	11.5	294.8	2540.5
2011	3,100	103.9	63.3	67.7	0.0	16.0	0.0	11.5	262.4	2915.8
2012	3,100	104.1	106.7	67.7	15.2	21.0	0.0	11.5	326.2	2,903.2
2013	3,100	105.0	100.0	67.7	71.4	26.0	0.0	11.5	381.6	2,554.9
2014	3,100	104.1	100.0	67.7	89.2	31.0	0.0	11.5	403.5	2,533.4
2015	3,100	107.82	100.0	67.7	153.3	36.0	0.0	11.5	476.3	2,480.9
2016	3,100	105.0	100.0	67.7	130.8	41.0	0.0	11.5	456.0	2,504.3
2017	3,100	105.0	100.0	67.7	105.3	45.0	0.0	9.9	432.9	2,667.1.
2018	3,100	105	130	67.7	0.1	63	0.0	9.7	375.5	2,724.5
2019	3,100	105	160	67.7	46.55	68	0.0	6.9	454.2	2,645.8
2020	3,100	105	192.5	67.7	0.0	73	0.0	9.8	448.0	2,652.0
2021	3,100	105	205	67.7	0	78	0.0	11.5	467.2	2,632.8
2022	3,100	105	203	67.7	0	83	0.0	11.5	470.2	2,629.8
2023	3,100	105	200	67.7	0	88	0.0	11.5	472.2	2,627.8
2024	3,100	105	200	67.7	0	93	0.0	11.5	477.2	2,622.8
2025	3,100	105	200	67.7	0	98	0.0	11.5	482.2	2,617.8
2026	3,100	105	200	67.7	0	103	0.0	11.5	487.2	2,612.8
2027	3,100	105	200	67.7	0	103	0.0	11.5	487.2	2,612.8
2028	3,100	105	200	67.7	0	103	0.0	11.5	487.2	2,612.8
2029-37	3,100	105	200	67.7	0	103	0.0	11.5	487.2	2,612.8
2038-47 [6]	3,100	105	200	67.7	0	103	0.0	11.5	487.2	2,612.8
2048-77 [7]	3,100	105	200	67.7	0	50 [8]	0.0	11.5	434.2	2,665.8

1. 2003 through 2020, volumes are adjusted for actual USBR Decree Accounting values; IID Total Reduction and Net Available for Consumptive Use may not equal Col 2 minus Col 10, if IID conservation/use was not included in Exhibit B.
2. 2014 Letter of Agreement provides that, effective January 2016 total amount of conserved water available is 105 KAFY
3. Salton Sea Mitigation volumes may vary based on conservation volumes and method of conservation.
4. *This transfer is not likely given lack of progress on Salton Sea restoration as of 2018; shaded entries represents volumes that may vary..*
5. Reductions include conservation for 1988 IID/MWD Transfer, IID/SDCWA Transfer, AAC Lining; SDCWA Transfer Mitigation, MWD Transfer w/Salton Sea Restoration (if any); Misc. PPRs. Amounts are independent of increases and reductions as allowed by the IOPP.
6. Assumes SDCWA does not elect termination in year 35.
7. Assumes SDCWA and IID mutually consent to renewal term of 30 years.
8. Modified from 100 KAFY in CRWDA Exhibit B; stating in 2018 MWD will provide CVWD 50 KAFY of the 100 KAFY.

Source: CRWDA: Federal QSA Exhibit B, p 13; updated values from 2019 QSA Implementation Report

Due to limits on annual consumptive use of Colorado River water under the QSA/Transfer Agreements, IID's water supply during a normal year is best represented by the CRWDA Exhibit B Net Available for Consumptive Use (Table 14**, Column 11**). The annual volume is IID Priority 3(a) Quantified Amount of 3.1 million acre-feet (MAF**) (**Table 14**, Column 2)** less the IID transfer program reductions for each year **(Table 14, Columns** 3-9). IID suggests **Table 14** which assumes full use of IID's quantified water supply, be used in determining base normal year water availability.

CRWDA Exhibit B Net Available for Consumptive Use volumes less system operation demand represents the amount of water available for delivery by IID Water Department to its customers each year. In a normal year, perhaps 50,000 to 100,000 AF of effective rainfall would fall in the IID water service area. However, rainfall is not evenly distributed throughout the IID water service area and is not taken into account by IID in the submittal of its Estimate of Diversion (annual water order) to the USBR.

Expected Water Availability – Single Dry and Multiple Dry Years

When drought conditions exist within the IID water service area, as has been the case for the past decade or so, the water supply available to meet agricultural and non-agricultural water demands remains the same as normal year water supply because IID continues to rely solely on its entitlement for Colorado River water. Due to the priority of IID water rights and other agreements, drought conditions affecting Colorado River water supplies cause shortages for Arizona, Nevada and Mexico, before impacting California and IID. Accordingly, the Net Available for Consumptive Use volumes in **Table 14, Column 11** represents the water supply at Imperial Dam available for diversion by IID in single-dry year and multiple-dry year scenarios.

Under CRWDA Inadvertent Overrun Payback Policy (IOPP), IID has some flexibility to manage its water use. When the water level in Lake Mead is above 1,125 feet, an overrun of its USBR approved annual water order is permissible, and IID has up to three years to pay water use above the annual water order. When Lake Mead's water level is at or below 1,125 feet on January 1 in the calendar

year after the overrun is reported in the USBR Lower Colorado Region Decree Accounting Report, the IOPP prohibits additional overruns and requires that outstanding overruns be paid back in the

subsequent calendar year rather than in three years as allowed under normal conditions; that is, the payback is to be made in the calendar year following publication of the overrun in the USBR Decree Accounting Report. For historic IID annual rainfall, net consumptive use, transfers and IID underrun/overrun amounts see Table 14. For the purposes of the WSA, years with a shortage condition that impacts non-agricultural projects such as an IOPP payback obligation constitute "dry" years for IID.

In years of inadvertent overrun payback, conditions such as those in Sections 3.7 and 3.8 of the 2012 IWSP Water Agreement may go into effect, with the result that less water would be available for non-agricultural development contractors. Under such conditions, IID has requested that Orni 30 LLC's (a subsidiary company of Ormat Technologies, Inc.), management work with IID to ensure it can manage the reduction. IID has further indicated that, provided a water supply agreement is approved and executed by IID under the provisions of the IWSP, IID will have sufficient water to support the water of this Project.

Table 15: IID Annual Rainfall (In), Net Consumptive Use and Underrun/Overrun Amounts (AF), 1988-2020

Year	IID Total Annual Rainfall	IID Water Users	IID/MWD Transfer	IID/ SDCWA Transfer	SDCWA Transfer Salton Sea Mitigation	IID Underrun / Overrun	IID/CVWD Transfer	AAC Lining
1988		2,947,581						
1989		3,009,451						
1990	91,104	3,054,188	6,110					
1991	192,671	2,898,963	26,700					
1992	375,955	2,575,659	33,929					
1993	288,081	2,772,148	54,830					
1994	137,226	3,048,076	72,870					
1995	159,189	3,070,582	74,570					
1996	78,507	3,159,609	90,880					
1997	64,407	3,158,486	97,740					
1998	100,092	3,101,548	107,160					
1999	67,854	3,088,980	108,500					
2000	29,642	3,112,770	109,460					
2001	12,850	3,089,911	106,880					
2002	12,850	3,152,984	104,940					
2003	116,232	2,978,223	105,130	10,000	0	**6,555**		
2004	199,358	2,743,909	101,900	20,000	15,000	-166,408		
2005	202,983	2,756,846	101,940	30,000	15,000	-159,881		
2006	19,893	2,909,680	101,160	40,000	20,000	**12,414**		
2007	64,580	2,872,754	105,000	50,000	25,021	**6,358**		
2008	63,124	2,825,116	105,000	50,000	26,085	-47,999	4,000	8,898
2009	30,0354	2,566,713	105,000	60,000	30,158	-237,767	8,000	65,577
2010	189,566	2,545,593	105,000	70,000	33,736	-207,925	12,000	67,700
2011	109,703	2,915,784	103,940	63,278	0	**82,662**	16,000	67,700
2012	133,526	2,903,216	104,140	106,722	15,182	**134,076**	21,000	67,700
2013	134,497	2,554,845	105,000	100,000	71,398	-64,981	26,000	67,700
2014	53,517	2,533,414	104,100	100,000	89,168	797	31,000	67,700
2015	97,039	2,480,933	107,820	100,000	153,327	-90,025	36,000	67,700
2016	90,586	2,504,258	105,000	100,000	130,796	-62,497	41,000	67,700
2017	105,919	2,548,164	105,000	100,000	105,311	-30,591	45,000	67,700
2018	63,318	2,625,422	105,000	130,000	0	0	63,000	67,700
2019	146,384	2,558,136	105,000	160,000	46,555	-34,215	68,000	67,700
2020	129,693	2,493,661	105,000	192,500	0	-95,715	73,000	67,700

Notes: Volumes in acre-feet and except Total Annual Rainfall are USBR Decree Accounting Report record at Imperial Dam.
IID Total Annual Rainfall from IID Provisional Water Balance, first available calculations are for 1990
Not all IID QSA programs are shown on this table.
Source: USBR Decree Accounting reports, except IID Total Rainfall and IID Overrun/Underrun is a separate calculation
Source: 2019 IID QSA Implementation Report and 2020 IID SWRCB Report, page 31 of 335; IID Total Rainfall and IID Overrun/ Underrun is a separate calculation

Equitable Distribution Plan

A 2006 study by Hanemann and Brookes suggested that such conditions were likely to occur 40-50% of the years during the decade following the report. On November 28, 2006, the IID Board of Directors adopted Resolution No 22-2006 approving development and implementation of an Equitable Distribution Plan to deal with times when customers' demand would exceed IID's Colorado River supply. The EDP, adopted in 2007 allows the IID Board to institute an apportionment program. As part of this Resolution, the IID Board directed the General Manager to prepare the rules and regulations necessary or appropriate to implement the plan within the district, which the board adopted in November 2006. The 2009 Regulations for EDP were created to enable IID to implement a water management tool (apportionment) to address years in which water demand is expected to exceed supply. So far, for the 17 years from 2003 through 2020, demand has exceeded supply by some amount for a total of five years (see Table 15**,** above). IID has not experienced any overruns since 2012.

The IID 2013 Revised EDP, adopted by the Board on October 28, 2013, further allowed IID to pay back its outstanding overruns using an EDP Apportionment, and it was expected that an annual EDP Apportionment would be established for each of the next several years, if not for the duration of the QSA/Transfer Agreements. For purposes of this WSA, years with a shortage condition that impacts non-agricultural projects such as an IOPP payback obligation constitute "dry" years for IID. For single-dry year and multiple-dry water year assessments, IID's EDP shall govern. IOPP payback, EDP Apportionment, and the IWSP are further discussed under single-dry and multiple-dry year projections. However, the implementation of the EDP apportionment was legally challenged, and on February 6, 2018, the IID board approved a resolution repealing the EDP until the issue is resolved. As of the date of this WSA, a resolution had been reached, but a modified EDP has yet to be re-instated.

WATER MANAGEMENT UNDER INADVERTENT OVERRUN PAYBACK POLICY (IOPP)

On January 1, 2013, the water level in Lake Mead was 1,120.5 feet and for the first time since the IOPP came into effect, Lower Colorado River Basin water users faced a shortage condition (**Figure 7**). For IID, this means that outstanding overruns must be paid back to the river in calendar years following the shortage (2013 and 2014) as described below and shown in Table 16.

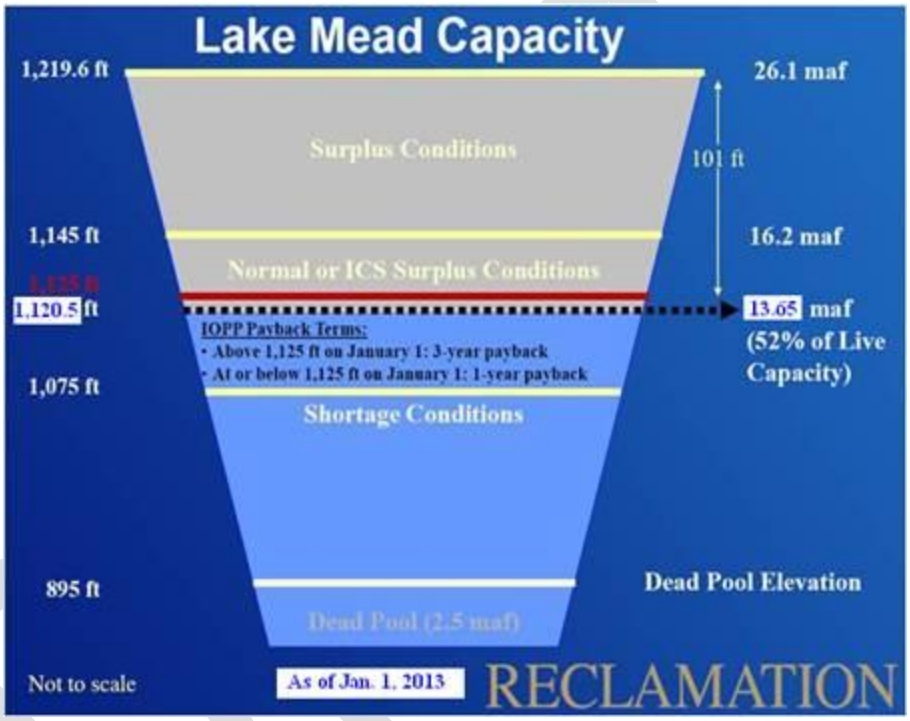


Figure 7 Lake Mead IOPP Schematic

IID's maximum allowable cumulative overrun account is 62,000 AF.[28] Thus, for IID's 2011 overrun of 82,662 AF (which was published in 2012), 62,000 AF were paid back at the river in calendar year 2013, with the remaining 20,662 AF paid back in 2014; however, due to an early payback of 6,290 AF in 2012, IID had 55,710 AF to pay back in 2013 and 20,662 AF of the 2011 overrun to pay back in 2014. In addition, because of the low level of Lake Mead on Jan 1, 2013, IID's entire 2012 overrun of 134,076 AF was paid back in 2014, for a total of 154,738 AF in 2014. Furthermore,

[28] For IID Quantified Amount: 3.1 MAFY *10 percent = 310,000 AF allowable cumulative overrun account amount; minimum repayment in a calendar year is the less of 310,000 * 20 percent = 62,000 or the amount in the account, if less than 62,000 AF.

under the terms of the IOPP, no overruns are allowed in year when payback is required. IID has not experienced any overrun payback since 2014.

Table 16: IID Inadvertent Overrun Payback to the Colorado River under the IOPP, 2012-2020

Calendar Year of Payback	2011 Overrun Payback (AF)	2012 Overrun Payback (AF)	Payback Total for 2014 Calendar Year (AF)
2013	55,710	-	55,710
2014	20,662	134,076	154,738
Total Payback	76,372	134,076	210,448

The 2013 IOPP payback obligation and prohibition on overruns in payback years, led the IID Board to implement an apportionment program pursuant to the 2009 Regulations for EDP, which were subsequently revised and modified. The Revised 2013 EDP was version approved and adopted by the IID Board on October 28, 2013 (see Attachment B). The Revised 2013 EDP also establishes an agriculture water clearinghouse to facilitate the movement of apportioned water between agricultural water users and between farm units. This is to allow growers and IID to balance water demands for different types of crops and soils with the apportionment s that are made. IID's Water Conservation Committee agreed on a July 1, 2013 start date for the agricultural water clearinghouse.

Generally, the EDP Apportionment is not expected to impact industrial use. However, given the possibility of continuing drought on the Colorado River and other stressors, provisions such as the 2012 IWSP Water Agreement sections 3.7 and 3.8 as well for dry and multiple dry year water assessment may come into effect. However, IID has agreed to work with Project proponents to ensure to the extent possible that the IWSP Water Agreement terms will not negatively impact Project operation.

PROJECT WATER AVAILABILITY FOR A 30-YEAR PERIOD TO MEET PROJECTED DEMANDS

The proposed Project will obtain drinking water from a certified State of California provider via a local vendor who is authorized to haul potable water to the project site and verified through purchase agreement to Imperial County Environmental Health and Safety.

Untreated Colorado River water will be supplied via the adjacent Best canal, gate's 110, 113, 114, & 115 under an Industrial Water Supply Agreement with IID. The untreated Colorado River water will be used solely for periodic panel washing, fire suppression and dust mitigation as previously stated. The applicant will be accepting an agreement with a local vendor for potable water needs. The applicant is required to enter into an IWSP Water Supply Agreement with IID and Schedule 7. General Industrial Use.`

The current land use is agricultural land, the proposed Project will undergo a CUP and a General Plan Amendment for parcels 037-140-005, -022 and -023. The reason for the General Plan Amendment is due to the fact that project site is situated just outside the Renewable Energy Overlay area, no Zone Change is needed because the zoning for agricultural zoning is maintained. The project site is currently receiving water from Best Canal, gates 110, 113, 114 and 115. The project water delivery will decrease from the overall current and historic use of water by 831.63AFY. The canal gates are currently in working condition.

Imperial County Entitlement Discretionary Permits for the Project Include:

- Imperial County Planning Department – General Plan Amendment
- Imperial County Planning Department – Conditional Use Permit
- Imperial County Planning Department – Certification of the EIR

Subsequent ministerial approvals for the Project may include, but are not limited to:

- Grading and clearing permits
- Building permits
- Reclamation plan
- Encroachment permits
- Transportation permit(s)

As noted previously, under the terms of California legislation adopted to facilitate the QSA/Transfer Agreement and enacted in CWCW Section 1013, the IID board adopted TLCEP to address how to deal with any such temporary reductions of water use by projects like such sola project that are developed under a CUP.

While conserved water generated from the TLCFP is limited by law for use for water transfer or environmental purposes, by satisfying multiple districts objectives the TLCFP severs to reduce the need for efficiency conservation and other water use reductions practices on the part f IID and its water users providing the districts with wide benefits. One of the considerations in developing the TLCFP was to provide agricultural land owners with long term assurances from IID that, at Project termination irrigation services would be available for them to resume farming operations.

INTERIM WATER SUPPLY POLICY WATER

At the present time, IID is providing water for use by solar energy generation projects under Water Rate Schedule 7 General Industrial Use. If IID determines that the proposed Project should obtain water under IID's Interim Water Supply Policy (IWSP) for non-agricultural projects rather than Schedule 7 General Industrial Use, the Applicant will do so. IID will determine whether the Project

should obtain water under IID's Interim Water Supply Policy (IWSP) for non-agricultural projects in addition to Schedule 7 General Industrial Water.

The IWSP, provided herein as Attachment A, designates up to 25,000 AFY of water for potential Non-Agricultural Projects within IID's water service area. As of September 2021, IID has 23,800 AF available under the IWSP for new projects such as the proposed project. The IWSP establishes a schedule for Processing Fees, Reservation Fees, and Connection Fees that change each year for all non-agricultural projects, and annual Water Supply Development fees for some non-agricultural projects. The proposed Project's water use will be subject to the annual Water Supply Development fee if IID determines that water for the Project is to be supplied under the IWSP.

The likelihood that IID will not receive its annual 3.1 MAF apportionment less QSA/Transfer Agreement obligations of Colorado River water is low due to the high priority of the IID entitlement relative to other Colorado River contractors, see IID's Water Rights section on page 17. If such reductions were to come into effect within the 20-year Project life, the Applicants are to work with IID to ensure any reduction can be managed.

As such, lower Colorado River water shortage does not present a material risk to the available water supply that would prevent the County from making the findings necessary to approve this WSA. IID, like any water provider, has jurisdiction to manage the water supply within its service area and impose conservation measures during a period of temporary water shortage. Furthermore, without the proposed Project, IID's task of managing water supply under the QSA/Transfer Agreements would be more difficult, because agricultural use on the proposed Project site would be significantly higher than the proposed demand for the proposed Project as explained in the Expected Water Demands for the Proposed Project on the section that follows.

Water for construction (primarily for dust control) would be obtained from IID canals or laterals in conformance with IID rules and regulations for MCI temporary water use.[29] Water would be picked

[29] *Complete the Application for Temporary Water Use and submit to Division office. Complete encroachment permit through Real Estate – non-*

up from a nearby canal or lateral and delivered to the construction location by a water truck capable of carrying approximately 4,000 gallons per load. To obtain water delivery service, the Project proponent will complete an IID-410 Certificate of Ownership and Authorization (Water Card), which allows the Water Department to provide the district with information needed to manage the district apportioned supply. Water cards are used for Agriculture, Municipal, Industrial and Service Pipe accounts. If water is to be provided under IWSP in addition to Schedule 7. General Industrial Use, the Applicant will seek to enter into a IWSP Water Supply Agreement.

EXPECTED WATER DEMANDS FOR THE APPLICANT

Water for the proposed Project will be needed on-site for panel washing, fire suppression and dust mitigation see Table 17 use. water will be supplied to the Project via the adjacent Best Canal Gates, 110, 113, 114, and 115. Untreated Colorado River water will be supplied via the adjacent canal under an Industrial Water Supply Agreement. The untreated Colorado River water will be used solely for periodic panel washing, fire suppression and dust mitigation as previously stated. The applicant is required to enter into an IWSP Water Supply Agreement with IID and will be subject to Schedule 7. General Industrial Use.`

The current land use is agricultural land, the Project will undergo a CUP and a General Plan Amendment for parcels 037-140-005, -022, -023. Reason for the General Plan Amendment is needed since it is just outside the Renewable Energy Overlay area, no Zone Change is needed because the zoning for agricultural zoning is maintained. The project site is currently receiving water from Best Canal 110, 113, 114 and 115. The project water delivery will decrease from the overall current and historic use of water. The Project is anticipated to use approximately 3.1 AFY of water to operate a solar facility please refer to Table 2.. Projected raw water uses are summarized in Table 17.

refundable application fee of $250, se. IID website: Real Estate / Encroachments, Permissions, and Other Permitting. Fee for temporary service water: Schedule No. 7 General Industrial Use / Temporary Service Minimum charge for up to 5 AF, pay full flat fee for 5 AF at General Industrial Use rate ($425); use more than 5 AF, pay fee for actual use at General Industrial Rate ($85/AF).

Table 17 Project Water Uses (AFY)

Water Use	Single-Year Use	AFY
Raw Water for Operations (Panel Washing) & Mitigation (Dust & Fire) (Years 28[30])		3.1 AFY
Construction Water (Year 1)[31]	32.5 AF	0 AFY
Decommissioning Water (1 Year)	32.5 AF	0AFY
Total Raw Water Usage	151.8 AF	86.8AF

IID delivers untreated Colorado River water to the proposed Project site for agricultural uses through the following gates and laterals. The 10-year record for 2011-2020 of water delivery accounting is shown in

Table 18. and has a ten-year 737.2 historic average in AFY.

Table 18 Ten-Year Historic Delivery (AFY), 2011-2020

Canal/Gate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Best 115	0	0	226.9	412.3	435.8	425.0	307.9	513.8	417.3	317.2
Best 114	0	0	136.9	230.9	259.2	257.0	262.0	340.9	381.1	247.2
Best 113	0	0	111.4	286.1	212.8	223.4	350.5	282.8	197.2	247.5
Best 110	0	0	127.4	161.4	172.6	142.4	121.9	171.0	204.5	163.0
Total	**0**	**0**	**602.6**	**1090.7**	**1080.4**	**1047.8**	**1042.3**	**1308.5**	**1200.1**	**974.9**

Source: *IID Staff, June 2, 2021 (Jose Moreno)*

The proposed Project has an estimated total water demand of 151.8 AF or 5.06 AFY amortized over a 30-year term (for all delivery gates for Project). Thus, the proposed Project demand is a reduction of 831.63 AFY from the historical 10-year average or 99 percent (99%) less than the historic 10-year average annual delivery for agricultural uses at the proposed Project site. The proposed Project's estimated water demand represents only .02% of the 23,800 AFY balance of supply available for contracting under the IWSP.

[30] 180,000 gallons of water will need to be stored on-site during operation for Fire Suppression needs per Imperial County Fire Department standards.

[31] 20,000 gallons of water will need to be stored on-site during construction per Imperial County Fire Department standards.

IID's Ability to Meet Demands With Water Supply

Non-agricultural water demands for the IID water service area are projected for 2025-2055 in Table 8, and IID agricultural demands including system operation are projected for 2025-2055 in Table 9, all volumes within the IID water service area. IID water supplies available for consumptive use after accounting for mandatory transfers are projected to 2077 in Table 14 **(Column 11),** volumes at Imperial Dam.

To assess IID's ability to meet future water demands, IID historic and forecasted demands are compared with CRWDA Exhibit B net availability, volumes at Imperial Dam Table 14 **(Column 11**). The analysis requires accounting for system operation consumptive use within the IID water service area, from AAC at Mesa Lateral 5 to Imperial Dam, and for water pumped for use by the USBR Lower Colorado Water Supply Project (LCRWSP), an IID consumptive use component in the USBR Decree Accounting Report. IID system operation consumptive use for 2015 is provided in Table 19 to show the components included in the calculation and their 2015 volumes.

Table 19 IID System Operations Consumptive Use within IID Water Service Area and from AAC at Mesa Lateral 5 to Imperial Dam, (KAF), 2020

	Consumptive Use (KAF)
IID Delivery System Evaporation	24.4
IID Canal Seepage	90.8
IID Main Canal Spill	10.0
IID Lateral Canal Spill	121.5
IID Seepage Interception	-39.0
IID Unaccounted Canal Water	-40.0
Total IID System Operational Use, within water service area	**167.8**
"Losses" from AAC @ Mesa Lat 5 to Imperial Dam	9.2
LCWSP pump age	-10
Total System Operational Use in 2020	**167.0**

Sources: 2020 Water Balance rerun 01/25/2021, and 2016 IID Water Conservation Plan

IID's ability to meet customer water demands through 2055 are shown in Table 20.

- Non-agricultural use from Table 8
- Agricultural and Salton Sea mitigation uses from Table 9
- CRWDA Exhibit B net available for IID consumptive use from Table 14
- System operation consumptive use from Table 19

Table 20: IID Historic and Forecasted Consumptive Use vs CRWDA Exhibit B IID Net Available Consumptive Use, volumes at Imperial Dam (KAFY), 2015-2055

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Non-Ag Delivery	**110.1**	115.2	133.1	142.9	151.4	163.2	175.4	188.4	199.3
Ag Delivery	**2,156.8**	2,165.4	2,259.5	2,209.5	2,209.5	2,209.5	2,209.5	2,209.5	2,209.5
QSA SS Mitigation Delivery	**153.3**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
System Op CU in IID & to Imperial Dam	**220.2**	**167.0**	**230.5**	**225.4**	**225.4**	**225.4**	**225.4**	**225.4**	**225.4**
IID CU at Imperial Dam	**2,480.9**	2,493.7	2,623.1	2,577.8	2,586.3	2,598.1	2,610.3	2,623.3	2,634.2
Exhibit B IID Net Available for CU at Imperial Dam	**2,480.9**	**2,652.0**	**2,617.8**	**2,612.8**	**2,612.8**	**2,612.8**	**2,612.8**	**2,665.8**	**2,665.8**
IID Underrun/Overrun at Imperial Dam	**-90.0**	-98.1	-5.30	35.00	26.50	14.70	2.50	42.50	31.60

Notes: 2015 Provisional Water Balance rerun 06/28/2019
Non-Ag Delivery CI 15.0%, Ag Delivery CI 3.0%, QSA SS mitigation CI 15%
QSA Salton Sea Mitigation Delivery terminates on 12/31/2017
Underrun /Overrun = IID CU at Imperial Dam minus CRWDA Exhibit B Net Available
Notes: Ag Delivery for 2020-2055 does not take into account land conversion for solar use nor reduction in agricultural land area due to urban expansion.

As shown above, IID forecasted demand has the potential to exceed CRWDA Exhibit B Net Consumptive Use volumes during several time intervals through the lifespan projection for the Project. However, due to temporary land conversion for solar use and urban land expansion that will reduce agricultural acres in the future, a water savings of approximately 217,000 AFY will be generated into the future and for the lifetime of the Project.

In addition, USBR 2020 Decree Accounting Report states that IID Consumptive Use is 2,493.7 KAF (excludes 1,579 AF of ICS for Storage in Lake Mead and an additional 49,444 AF of conserved water left on the Colorado River system) with an underrun of -98.1 KAF, as reported by IID in 2020 Annual SWRCB Report per WRO 2002-2013; that is, IID uses less than the amount in its approved Water Order (2,615,300 AF).

Table 21: 2020 Approved Water Order, Actual CU (Decree Accounting Report) and IID Underrun, KAF at Imperial Dam

IID Approved Water Order	2,625.3 less 10 supplied by LCWSP and less 26 of additional water
IID Consumptive Use	2,493.7
IID **Underrun /Overrun**	**-98.1**
Sources: 2020 IID Revised Water Order, approved on March 10, 2020, 2020 Decree Accounting Report, and 2020 Annual Report of IID Pursuant to SWRCB Revised Order WRO 2002-2013	

As reported in the 2020 QSA Implementation Report and 2020 SWRCB IID Report and presented in **Table 20** from 2013 to 2020 IID consumptive use (CU) resulted in underruns; i.e., annual CU was less than the district's QSA Entitlement of 3.1 MAFY minus QSA/Transfer Agreements obligations. This would indicate that even though **Table 10** shows IID Overrun/Underrun at Imperial Dam exceeding CRWDA Exhibit B Net Available for CU, for the 30-year life of the proposed Project, IID consumptive use may be less than forecasted. However, with repeal of the IID EDP in February 2018, it is uncertain whether underruns will continue.

Meanwhile, forecasted Ag Delivery reductions presented in **Table 9** are premised on implementation of on-farm practices that will result in efficiency conservation. These reductions do not take into account land conversion for solar projects nor reduction in agricultural land area due to urban expansion; that is to say, the forecasted Ag Delivery is for acreage in 2003 with reduction for projected on-farm conservation efficiency. Thus, Ag Delivery demand may well be less than forecasted in **Table 9**. In any case, the proposed Project will use less water than the historical agricultural demand of proposed Project site, so the proposed Project will ease rather than exacerbate overall IID water demands.

In the event that IID has issued water supply agreements that exhaust the 25 KAFY IWSP set aside, and it becomes apparent that IID delivery demands due to non-agriculture use are going to cause the district to exceed its quantified 3.1 MAFY entitlement less QSA/Transfer Agreements obligations, IID has identified options to meet these new non-agricultural demands. These options include (1) tracking water yield from temporary land conversion from agricultural to non-

agricultural land uses (renewable solar energy); and (2) only if necessary, developing projects to expand the size of the district's water supply portfolio.

These factors will be discussed in the next two sections, **Tracking Water Savings from Growth of Non-Agricultural land Uses** and **Expanding Water Supply Portfolio.**

Tracking Water Savings from Growth of Non-Agricultural Land Uses

The Imperial County Board of Supervisors has targeted up to 25,000 acres of agricultural lands, about 5 percent (5%) of the farmable acreage served by IID, for temporary conversion to solar farms; because the board found that this level of reduction would not adversely affect agricultural production. As reported for IID's 2020 Temporary Land Conversion Fallowing Program existing solar developments at the end of 2020 have converted 12,404 acres of farmland. These projects had a yield at-river of 65,964 AF of water in 2020. The balance of the 25,000-acre agriculture-to-solar policy is 12,596 acres. On average, each agricultural acre converted reduces agricultural demand by 5.1 AFY, which results in a total at-river yield (reduction in consumptive use) of 127,500 AFY.

However, due to the nature of the conditional use permits under which solar farms are developed, IID cannot rely on this supply being permanently available. In fact, should a solar project decommission early, that land may go immediately back to agricultural use (it remains zoned an agricultural land). Nevertheless, during their operation, the solar farms do ameliorate pressure on IID to implement projects to meet demand from new non-agricultural projects.

Unlike the impact of solar projects, other non-agricultural uses are projected to grow, as reflected in the nearly 55 percent (55%) increase in non-agricultural water demand from 107.4 KAF in 2015 to 201.4 KAF in 2055 reflected herein in **Table 8**. This increase in demand of 94 KAFY will more than likely be met by solar development; however, as the land remains zoned as agricultural land, that source is not reliable to be permanently available to IID.

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The amount of land developed for residential, commercial, and industrial purposes is projected to grow by 55,733 acres from 2015 to 2050[32] within the sphere of influence of the incorporated cities and specific plan areas in Imperial County. A conservative estimate is that such development will displace at least another 24,500 acres of farmland based on the Imperial County Local Agency Formation Commission (LAFCO) sphere of influence maps and existing zoning and land use in Imperial County. At 5.13 AFY yield at-river, there would be a 125,000 AFY reduction IID net consumptive use.

The total foreseeable solar project temporary yield at-river (91,800 AFY) and municipal development permanent yield at-river (125,000 AFY) is to reduce forecasted IID net consumptive use at-river 216,800 AFY, which is more than enough to meet the forecast Demand minus Exhibit B Net Available volumes shown in Table 14. This Yield at-river is sufficient to meet the forecasted excess of non-agricultural use over Net Available supply within the IID service area for the next 20 years, as is required for SB 610 analysis.

Farmland retirement associated with municipal development would reduce IID agricultural delivery requirements beyond the efficiency conservation projections shown in **Table 9.** Therefore, in the event that Schedule 7 General Industrial Use water is unavailable, the Applicants will rely on IID IWSP water to supply the Project, as discussed above in the section **IID Water Supply Policy for Non-Agricultural Projects (September 2009).**

EXPANDING WATER SUPPLY PORTFOLIO

While forecasted long-term annual yield-at-river from the reduction in agricultural acreage due to municipal development in the IID service area is sufficient to meet the forecasted excess of non-agricultural use over CRWDA Net Available supply (**Table 14)** without expanding IID's Water Supply Portfolio, IID has also evaluated the feasibility of a number of capital projects to increase its water supply portfolio.

[32] IRWMP, Chapter 5, Table 5-14

As reported in 2012 Imperial IRWMP Chapter 12, IID contracted with GEI Consultants, Inc. to identify a range of capital project alternatives that the district could implement. Qualitative and quantitative screening criteria and assumptions were developed in consultation with IID staff. Locations within the IID water service area with physical, geographical, and environmental characteristics most suited to implementing short- and long-term alternatives were identified. Technical project evaluation criteria included volumes of water that could be delivered and/or stored by each project, regulatory and permitting complexity, preliminary engineering components, land use requirements, and costs.

After preliminary evaluation, a total of 27 projects were configured:

- 17 groundwater or drain water desalination
- 2 groundwater blending
- 6 recycled water
- 1 groundwater banking
- 1 IID system conservation (concrete lining)

Projects were assessed at a reconnaissance level to allow for comparison of project costs. IID staff and the board identified key factors to categorize project alternatives and establish priorities. Lower priority projects were less feasible due to technical, political, or financial constraints. Preferential criteria were features that increased the relative benefits of a project and grant it a higher priority. Four criteria were used to prioritize the IID capital projects:

1. **Financial Feasibility.** Projects whose unit cost was more than $600/AF were eliminated from further consideration.
2. **Annual Yield.** Project alternatives generating 5,000 AF or less of total annual yield were determined not to be cost-effective and lacking necessary economies of scale.

3. **Groundwater Banking.** Groundwater banking to capture and store underruns is recognized as a beneficial use of Colorado River water. Project alternatives without groundwater banking were given a lower priority.
4. **Partnering.** Project alternatives in which IID was dependent on others (private and/or public agencies) for implementation were considered to have a lower priority in the IID review; this criterion was reserved for the IRWMP process, where partnering is a desirable attribute.

Based on these criteria, the top ten water expansion included six desalination, two groundwater blending, one system conservation, and one groundwater storage capital projects. These capital projects are listed ***Table 22 IID Capital Project Alternatives and Cost (May 2009 price levels $)***which follows.

Table 22 IID Capital Project Alternatives and Cost (May 2009 price levels $)

Name	Description	Capital Cost	O&M Cost	Equivalent Annual Cost	Unit Cost ($/AF)	In-Valley Yield (AF)
GW 18	Groundwater Blending E. Mesa Well Field Pumping to AAC	$39,501,517	$198,000	$2,482,000	$99	25,000
GW 19	Groundwater Blending: E. Mesa Well Field Pumping to AAC w/Percolation Ponds	$48,605,551	$243,000	$3,054,000	$122	25,000
WB 1	Coachella Valley Groundwater Storage	$92,200,000	$7,544,000	$5,736,746	$266	50,000
DES 8	E. Brawley Desalination with Well Field and Groundwater Recharge	$100,991,177	$6,166,000	$12,006,000	$480	25,000
AWC 1	IID System Conservation Projects	$56,225,000	N/A	$4,068,000	$504	8,000
DES 12	East Mesa Desalination with Well Field and Groundwater Recharge	$112,318,224	$6,336,000	$12,831,000	$513	25,000
DES 4	Keystone Desalination with IID Drain water/ Alamo River	$147,437,743	$15,323,901	$23,849,901	$477	50,000
DES 14	So. Salton Sea Desalination with Alamo River Water and Industrial Distribution	$158,619,378	$15,491,901	$24,664,901	$493	50,000
DES 15	So. Salton Sea Desalination with Alamo River Water and MCI Distribution	$182,975,327	$15,857,901	$26,438,901	$529	50,000
DES 2	Keystone Desalination with Well Field and Groundwater Recharge	$282,399,468	$13,158,000	$29,489,000	$590	50,000

Source: Imperial IRWMP, Chapter 12; see also Imperial IRWMP Appendix N, IID Capital Projects

IID Near Term Water Supply Projections

As mentioned above, IID's quantified Priority 3(a) water right under the QSA/Transfer Agreements secures 3.1 MAF per year, less transfer obligations of water for IID's use from the Colorado River, without relying on rainfall in the IID service area. Even with this strong entitlement to water, IID actively promotes on-farm efficiency conservation and is implementing system efficiency conservation measures including seepage recovery from IID canals and the All-American Canal (ACC) and measures to reduce operational discharge. As the IID website Water Department states:

> Through the implementation of extraordinary conservation projects, the development of innovative efficiency measures and the utilization of progressive management tools, the IID Water Department is working to ensure both the long-term viability of agriculture and the continued protection of water resources within its service area.

Overall, agricultural water demand in the Imperial Valley will decrease due to IID system and grower on-farm efficiency conservation measures that are designed to maintain agricultural productivity at pre-QSA levels while producing sufficient yield-at-river to meet IID's QSA/Transfer Agreements obligations. These efficiencies combined with the conversion of some agricultural land uses to non-agricultural land uses (both solar and municipal), ensure that IID can continue to meet the water delivery demand of its existing and future agricultural and non-agricultural water users, including this Project for the next 30 years and for the life of the proposed Project.

PUBLIC WATER SYSTEM/ LEAD AGENCY FINDINGS

IID serves as the regional wholesale water supplier, importing raw Colorado River water and delivering it, untreated, to agricultural, municipal, industrial, environmental, and recreational water users within its Imperial Unit water service area. The County of Imperial serves as the responsible agency with land use authority over the proposed project. Water Assessment findings are summarized as follows:

1. IID's annual entitlement to consumptive use of Colorado River water is capped at 3.1 MAF less water transfer obligations, pursuant to the QSA and Related Agreements. Under the terms of the CRWDA, IID is implementing efficiency conservation measure to reduce net consumptive use of Colorado River water needed to meet its QSA/Transfer Agreements obligations while retaining historical levels of agricultural productivity.
2. In 2020 IID consumptively used 2,493.661 AF of Colorado River water (volume at Imperial Dam); 2,278,598 AF were delivered to customers (including recreational and environmental water deliveries) of which 2,165,386 AF or 95 percent went to agricultural users as per IID's Water Balance run on 1/25/2021.
3. Reduction of IID's net consumptive use of Colorado River water under the terms of the Colorado River Water Delivery Agreement is to be the result of efficiency conservation measures. Agricultural consumptive use in the Imperial Valley will not decline. However, IID operational spill and tailwater will decline, impacting the Salton Sea.
4. Due to the dependability of IID's water rights, Colorado River flows, and Colorado River storage facilities for Colorado River water, it is unlikely that the water supply of IID would be disrupted, even in dry years or under shortage conditions because Mexico, Arizona and Nevada have lower priority and are responsible for reducing their water use during a declared Colorado River water shortage before impacting California.
5. Historically, IID has never been denied the right to use the annual volume of water it has available for its consumptive uses under its entitlement. Nevertheless, IID is participating in discussions for possible actions in response to extreme drought on the Colorado River.

6. The proposed Project has an estimated total water demand of 151.8 AF or 5.06 AFY amortized over a 30-year term (for all delivery gates for Project). Thus, the proposed Project demand is a reduction of 831.63 AFY from the historical 10-year average or 99 percent (99 %) less than the historic 10-year average annual delivery for agricultural uses at the proposed Project site.
7. The Project's water use will be covered under the Schedule 7 General Industrial Use. In the event that IID determines that the proposed Project is to utilize IWSP for Non-Agricultural Projects water, the Applicant will enter into an IWSP Water Supply Agreement with IID. In which case, the proposed Project would use .02 percent (.02%) of the 23,800 AFY of IWSP water.
8. Based on the Environmental Impact Report (EIR) prepared for this proposed Project pursuant to the CEQA, California Public Resources Code sections 21000, *et seq*., (SCH No. 2021070424) 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 30 -year proposed Project life.

Assessment Conclusion

This Water Supply Assessment has determined that IID water supply is adequate for the proposed Project. The Imperial Irrigation District's IWSP for Non-Agricultural Projects dedicates 25,000 AF of IID's annual water supply to serve new projects. As of September 2021, 23,800 AF per year remain available for new projects ensuring reasonably sufficient supplies for new non-agricultural water users. The project water demand of approximately 151.8 AF represents amortized over 30 years equates to 5.06 AFY which is .02% of the unallocated supply set aside in the IWSP for non-agricultural projects, and approximately .02 percent (.02%) of forecasted future non-agricultural water demands planned in the Imperial IRWMP through 2055. The water demand for the proposed project represents a 99% decrease from the historical average agricultural water use for 2011-2020 at the proposed Project site, a reduction in use of 831.63 AFY at full build out.

For all the reasons described herein, the amount of water available and the stability of the IID water supply along with on-farm and system efficiency conservation and other measures being undertaken by IID and its customers ensure that Orni 30, LLC's Brawley Solar Energy Facility Project's water needs will be met for the next 30 years as assessed for compliance under SB-610.

Resources and References

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Attachments

Attachment A

Attachment A: IID Interim Water Supply Policy for Non-Agricultural Projects

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Attachment A: IID Interim Water Supply Policy for Non-Agricultural Projects[33]

1.0 Purpose.

Imperial Irrigation District (the District) is developing an Integrated Water Resources Management Plan (IWRMP) [34] that will identify and recommend potential programs and projects to develop new water supplies and new storage, enhance the reliability of existing supplies, and provide more flexibility for District water department operations, all in order to maintain service levels within the District's existing water service area. The first phase of the IWRMP is scheduled to be completed by the end of 2009 and will identify potential projects, implementation strategies and funding sources. Pending development of the IWRMP, the District is adopting this Interim Water Supply Policy (IWSP) for Non-Agricultural Projects, as defined below, in order to address proposed projects that will rely upon a water supply from the District during the time that the IWRMP is still under development. It is anticipated that this IWSP will be modified and/or superseded to take into consideration policies and data developed by the IWRMP.

2.0 Background.

The IWRMP will enable the District to more effectively manage existing water supplies and to maximize the District's ability to store or create water when the available water supplies exceed the demand for such water. The stored water can be made available for later use when there is a higher water demand. Based upon known pending requests to the District for water supply assessments/verifications and pending applications to the County of Imperial for various Non-Agricultural Projects, the District currently estimates that up to 50,000 acre feet per year (AFY) of water could potentially be requested for Non-Agricultural Projects over the next ten to twenty years. Under the IWRMP the District shall evaluate the projected water demand of such projects and the potential means of supplying that amount of water. This IWSP currently designates up to 25,000 AFY of water for potential Non-Agricultural Projects within IID's water service area. Proposed Non-Agricultural projects may be required to pay a Reservation Fee, further described below. The reserved water shall be available for other users until such Non-Agricultural projects are implemented and require the reserved water supply. This IWSP shall remain in effect pending the approval of further policies that will be adopted in association with the IWRMP.

3.0 Terms and Definitions.

3.1 Agricultural Use. Uses of water for irrigation, crop production and leaching.

[33] IID Board Resolution 31-2009. Interim Water Supply Policy for New Non-Agricultural Projects. September 29, 2009. < IID Interim Water Supply Policy for Non-Agricultural Projects>

[34] The 2009 Draft IID IWRMP has been superseded by the October 2012 Imperial IRWMP, which incorporates the conditions of the IWSP by reference.

3.2 Connection Fee. A fee established by the District to physically connect a new Water User to the District water system.

3.3 Industrial Use. Uses of water that are not Agricultural or Municipal, as defined herein, such as manufacturing, mining, cooling water supply, energy generation, hydraulic conveyance, gravel washing, fire protection, oil well re-pressurization and industrial process water.

3.4 Municipal Use. Uses of water for commercial, institutional, community, military, or public water systems, whether in municipalities or in unincorporated areas of Imperial County.

3.5 Mixed Use. Uses of water that involve a combination of Municipal Use and Industrial Use.

3.6 Non-Agricultural Project. Any project which has a water use other than Agricultural Use, as defined herein.

3.7 Processing Fee. A fee charged by the District Water Department to reimburse the District for staff time required to process a request for water supply for a Non-Agricultural Project.

3.8 Reservation Fee. A non-refundable fee charged by the District when an application for water supply for a Non-Agricultural Project is deemed complete and approved. This fee is intended to offset the cost of setting aside the projected water supply for the project during the period commencing from the completion of the application to start-up of construction of the proposed project and/or execution of a water supply agreement. The initial payment of the Reservation Fee will reserve the projected water supply for up to two years. The Reservations Fee is renewable for up to two additional two-year periods upon payment of an additional fee for each renewal.

3.9 Water Supply Development Fee. An annual fee charged to some Non-Agricultural Projects by the District, as further described in Section 5.2 herein. Such fees shall assist in funding IWRMP or related water supply projects,

3.10 Water User. A person or entity that orders or receives water service from the District.

4.0. CEQA Compliance.

4.1 The responsibility for CEQA compliance for new development projects within the unincorporated area of the County of Imperial attaches to the County of Imperial or, if the project is within the boundaries of a municipality, the particular municipality, or if the project is subject to the jurisdiction of another agency, such as the California Energy Commission, the particular agency. The District will coordinate with the County of Imperial, relevant municipality, or other agency to help ensure that the water supply component of their respective general plans is comprehensive and based upon current information. Among other things, the general plans should assess the direct, indirect and cumulative potential impacts on the environment of using currently available water supplies for new industrial, municipal, commercial and/or institutional uses instead of the historical use of that water for agriculture. Such a change in land use, and

the associated water use, could potentially impact land uses, various aquatic and terrestrial species, water quality, air quality and the conditions of drains, rivers and the Salton Sea.

4.2 When determining whether to approve a water supply agreement for any Non-Agricultural Project pursuant to this IWSP, the District will consider whether potential environmental and water supply impacts of such proposed projects have been adequately assessed, appropriate mitigation has been developed and appropriate conditions have been adopted by the relevant land use permitting/approving agencies, before the District approves any water supply agreement for such project.

5.0. Applicability of Fees for Non-Agricultural Projects.[35]

5.1 Pursuant to this Interim Water Supply Policy, applicants for water supply for a Non-Agricultural Project shall be required to pay a Processing Fee and may be required to pay a Reservation Fee as shown in Table A. All Water Users shall also pay the applicable Connection Fee, if necessary, and regular water service fees according to the District water rate schedules, as modified from time to time.

5.2 A Non-Agricultural Project may also be subject to an annual Water Supply Development Fee, depending upon the nature, complexity, and water demands of the proposed project. The District will determine whether a proposed Non-Agricultural Project is subject to the Water Supply Development Fee for water supplied pursuant to this IWSP as follows:

5.2.1. A proposed project that will require water for a Municipal Use shall be subject to an annual Water Supply Development Fee as set forth in Table B if the projected water demand for the project is in excess of the project's estimated population multiplied by the District-wide per capita usage. Municipal Use projects without an appreciable residential component will be analyzed under sub-section 5.2.3.

5.2.2. A proposed project that will require water for an Industrial Use located in an unincorporated area of the County of Imperial shall be subject to an annual Water Supply Development Fee as set forth in Table B.

5.2.3. The applicability of the Water Supply Development Fee set forth in Table B to Mixed Use projects, Industrial Use projects located within a municipality, or Municipal Use projects without an appreciable residential component, will be determined by the District on a case-by-case basis, depending upon the proportion of types of land uses and the water demand proposed for the project.

5.3. A proposed Water User for a Non-Agricultural Projects may elect to provide some or all of the required water supply by paying for and implementing some other means of providing water in a manner approved by the District, such as conservation projects, water storage projects and/or use of an alternative source of supply, such as recycled water or some source of water other than from the District water supply. Such election shall require consultation with the District regarding the details of such alternatives and a

[35] The most recent fee schedules can be found in a link at IID/Water/ Municipal, Industrial and Commercial Customers; or visit by URL at Imperial Irrigation District : Water Rate Schedules

determination by the District, in its reasonable discretion, concerning how much credit, if any, should be given for such alternative water supply as against the project's water demand for purposes of determining the annual Water Supply Development Fee for such project.

5.4 The District Board shall have the right to modify the fees shown on Tables A and B from time to time.

6. Water Supply Development Fees collected by the District under this IWSP shall be accounted for independently, including reasonable accrued interest, and such fees shall only be used to help fund IWRMP or related District water supply projects.

7. Any request for water service for a proposed Non-Agricultural Project that meets the criteria for a water supply assessment pursuant to Water Code Sections 10910-10915 or a water supply verification pursuant to Government Code Section 66473.7 shall include all information required by Water Code Sections 10910 –10915 or Government Code Section 66473.7 to enable the District to prepare the water supply assessment or verification. All submittals should include sufficient detail and analysis regarding the project's water demands, including types of land use and per capita water usage, necessary to make the determinations outlined in Section 5.2.

8. Any request for water service for a proposed Non-Agricultural Project that does not meet the criteria for a water supply assessment pursuant to Water Code Section 10910-10915 or water supply verification pursuant to Government Code Section 66473.7 shall include a complete project description with a detailed map or diagram depicting the footprint of the proposed project, the size of the footprint, projected water demand at full implementation of the project and a schedule for implementing water service. All submittals should include sufficient detail and analysis regarding the project's water demands, including types of land use and per capita water usage, necessary to make the determinations outlined in Section 5.2.

9. All other District rules and policies regarding a project applicant or Water User's responsibility for paying connection fees, costs of capital improvements and reimbursing the District for costs of staff and consultant's time, engineering studies and administrative overhead required to process and implement projects remain in effect.

10. Municipal Use customers shall be required to follow appropriate water use efficiency best management practices (BMPs), including, but not limited to those established by the California Urban Water Conservation Council BMP's (see http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx), or other water use efficiency standards, adopted by the District or local government agencies.

11. Industrial Use customers shall be required to follow appropriate water use efficiency BMP's, including but not limited to those established by the California Urban Water Conservation Council and California Energy Commission, as well as other water use efficiency standards, adopted by the District or local government agencies.

12. The District may prescribe additional or different BMPs for certain categories of Municipal and Industrial Water Users.

NOISE IMPACT ANALYSIS

BRAWLEY SOLAR ENERGY FACILITY PROJECT

IMPERIAL COUNTY

Lead Agency:

Imperial County Planning and Development
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Project No. 21014

July 14, 2021

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ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
County	County of Imperial
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
ONAC	Federal Office of Noise Abatement and Control
OSB	Oriented Strand Board
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
UMTA	Federal Urban Mass Transit Administration
VdB	Vibration velocity level in decibels

1.0 EXECUTIVE SUMMARY

1.1 Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed Brawley Solar Energy Facility Project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise impacts from the proposed project; and,
- An analysis of long-term operations-related noise impacts from the proposed project.

1.2 Site Location and Study Area

The project site is located in the County of Imperial (County). The approximately 225-acre project site is currently alfalfa fields within different levels of harvest and is bounded by undeveloped agricultural land to the north and to the east, undeveloped agricultural land and dirt lots used for staging actives to the south, and City of Brawley Wastewater Treatment Plan to the west. The Union Pacific Railroad (UPRR runs through the western portion of the project site in a generally north-south direction. The project study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptor to the project site is a single-family home located as near as 40 feet to the north side of the project site (near the northwest corner of the project site). There are also homes located on the east side of Best Avenue that are as near as 120 feet east of the project site. The nearest school is Brawley Union High School and Desert Valley High School, which is located as near as 2.7 miles south of the project site and Barbara Worth Junior High School, which is located as near as 2.8 miles south of the project site.

1.3 Proposed Project Description

The proposed project would consist of development of solar energy facility located at 5003 Best Ave, Brawley. The Brawley solar energy facility includes a 40 Megawatt (MW)/160 Megawatt hour (MWh) photovoltaic (PV) solar farm and 40 MW/160 MWh battery energy storage system (BESS). The BESS will be located on the south side of the project site, approximately in the middle of the project site and the proposed transformers will be located on the west side of the BESS. The BESS will be located on a concrete pad and will consist of 12 banks of enclosures, totaling up to 432 enclosures. Each bank of batteries will be supported by a DC Combiner, control panel and inverter/transformer skid.

Power generated by the proposed 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. 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. The Project would connect to the North Brawley Geothermal Power Plant substation southwest of the Project site via an approximately 1.6-mile-long aboveground 92 kilovolt (kV) generation tie line (gen-tie line). Energy generated and stored by the project will 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 site plan is shown in Figure 2.

1.4 Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the County of Imperial and State of California.

County of Imperial Noise Regulations

The following lists the noise/land use compatibility standards from the Noise Element of the General Plan that are applicable, but not limited to the proposed project.

- Property Line Noise Standards
- Construction Noise Standards

State of California Noise Regulations

The following lists the State of California noise regulations that are applicable, but not limited to the proposed project.

- California Vehicle Code Section 2700-27207 – On Road Vehicle Noise Limits
- California Vehicle Code Section 38365-38350 – Off-Road Vehicle Noise Limits

1.5 Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

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?

Less than significant impact.

Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact.

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?

No impact.

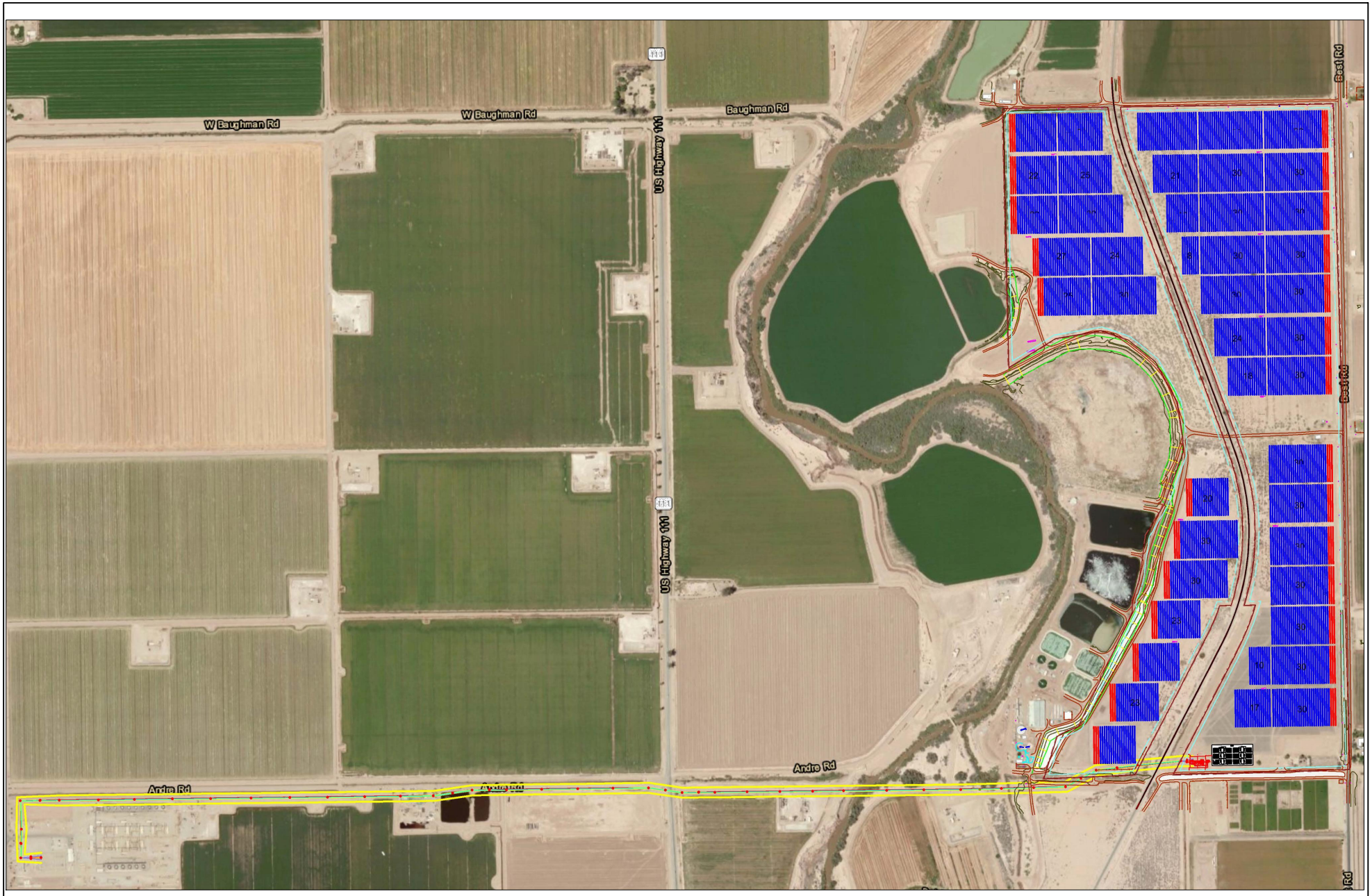
1.6 Mitigation Measures for the Proposed Project

This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above, all noise and vibration impacts would be reduced to less than significant levels and no mitigation is required.

SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Location Map



SOURCE: McKently Malak Architecture.

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The worst-hour traffic Leq, which is usually the peak traffic hour is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. The Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has an added 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason the sound appears louder in the evening and nighttime hours and is weighted accordingly. The County of Imperial also relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound

from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD) between source and receiver. Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.4 Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis as most ground surfaces between the source and receptor will provide some noise absorption.

3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 Vibration Descriptors

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is vibration decibels (VdB), which in this text, is when L_v is based on the reference quantity of 1 micro inch per second.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

3.3 Vibration Propagation

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform median, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation."

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 REGULATORY SETTING

The project site is located in the County of Imperial. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the federal Urban Mass Transit Administration (UMTA), while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the FTA is the only agency that has defined what constitutes a significant noise impact from implementing a project. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings are provided below in Table A.

Table A – FTA Project Effects on Cumulative Noise Exposure

Existing Noise Exposure (dBA Leq or Ldn)	Allowable Noise Impact Exposure dBA Leq or Ldn		
	Project Only	Combined	Noise Exposure Increase
45	51	52	+7
50	53	55	+5
55	55	58	+3
60	57	62	+2
65	60	66	+1
70	64	71	+1
75	65	75	0

Source: Federal Transit Administration, 2018.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, the City is restricted to regulating noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Noise Standards

California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix," which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

Caltrans issued the *Transportation- and Construction-Induced Vibration Guidance Manual* in 2004. The manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

4.3 Local Regulations

The County of Imperial General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

County of Imperial General Plan Noise Element

The General Plan Noise Element provides the following noise standards:

1. Interior Noise Standards

The California Noise Insulation Standards, California Code of Regulations Title 24, establishes a maximum interior noise level, with windows closed, of 45 dB CNEL, due to exterior sources. This requirement is applicable to new hotels, motels, apartment houses and dwellings other than detached single-family dwellings.

The County of Imperial hereby establishes the following additional interior noise standards to be considered in acoustical analyses.

- The interior noise standard for detached single family dwellings shall be 45 dB CNEL.
- The interior noise standard for schools, libraries, offices and other noise sensitive areas where the occupancy is normally only in the day time, shall be 50 dB averaged over a one-hour period (Leq(1)).

2. Property Line Noise Standards

The Property Line Noise Limits listed in Table 9 shall apply to noise generation from one property to an adjacent property. The standards imply the existence of a sensitive receptor on the adjacent, or receiving, property. In the absence of a sensitive receptor, an exception or variance to the standards may be appropriate. These standards do not apply to construction noise.

These standards are intended to be enforced through the County's code enforcement program on the basis of complaints received from persons impacted by excessive noise. It must be acknowledged that a noise nuisance may occur even though an objective measurement with a sound level meter is not available. In such cases, the County may act to restrict disturbing, excessive, or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity residing in an area.

Table B – County of Imperial Property Line Noise Limits

Zone	Time	Applicable Limit One-hour Average Sound Level (Decibels)
Residential Zones	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
Multi-Residential Zones	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
Commercial Zones	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
Light Industrial/Industrial Park Zones	Anytime	70
General Industrial Zones	Anytime	75

Note: When the noise-generating property and the receiving property have different uses, the more restrictive standard shall apply. When the ambient noise level is equal to or exceeds the Property Line noise standard, the increase of the existing or proposed noise shall not exceed 3 dB Leq.
Source: County of Imperial, 2015.

3. Construction Noise Standards

Construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB Leq, when averaged over an eight (8) hour period, and measured at the nearest sensitive receptor. This standard assumes a construction period, relative to an individual sensitive receptor of days or weeks. In cases of extended length construction times, the standard may be tightened so as not to exceed 75 dB Leq when averaged over a one (1) hour period.

Construction equipment operation shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays. In cases of a person constructing or modifying a residence for himself/herself, and if the work is not being performed as a business, construction equipment operations may be performed on Sundays and holidays between the hours of 9 a.m. and 5 p.m. Such non-commercial construction activities may be further restricted where disturbing, excessive, or offensive noise causes discomfort or annoyance to reasonable persons of normal sensitivity residing in an area.

4. Significant Increase of Ambient Noise Levels

The increase of noise levels generally results in an adverse impact to the noise environment. The Noise/Land Use Compatibility Guidelines are not intended to allow the increase of ambient noise levels up to the maximum without consideration of feasible noise reduction measures. The following guidelines are established by the County of Imperial for the evaluation of significant noise impact.

a. If the future noise level after the project is completed will be within the "normally acceptable" noise levels shown in the Noise/Land Use Compatibility Guidelines, but will result in an increase of 5 dB CNEL or greater, the project will have a potentially significant noise impact and mitigation measures must be considered.

b. If the future noise level after the project is completed will be greater than the "normally acceptable" noise levels shown in the Noise/Land Use Compatibility Guidelines, a noise increase of 3 dB CNEL or greater shall be considered a potentially significant noise impact and mitigation measures must be considered.

The following applicable goals, objectives, and policies to the proposed project are from the Noise Element of the General Plan.

Goal 1: Provide an acceptable noise environment for existing and future residents in Imperial County.

Objective 1.3 Control noise levels at the source where feasible.

Objective 1.4 Coordinate with airport operators to ensure operations are in conformance with approved Airport Land Use Compatibility Plans

Goal 2: Review proposed projects for noise impacts and require design which will provide acceptable indoor and outdoor noise environments.

Objective 2.3 Work with project proponents to utilize site planning, architectural design, construction, and noise barriers to reduce noise impacts as projects as proposed.

Policy 1: Acoustical Analysis of Proposed Projects

The County shall require the analysis of proposed discretionary projects which may generate excessive noise or which may be impacted by existing excessive noise levels, including but not limited to the following:

- An analysis shall be required for any project which would be located, all or in part, in a Noise Impact Zone as specified above.
- An analysis shall be required for any project which has the potential to generate noise in excess of the Property Line Noise Limits stated in Table 9 (see Table B).
- An analysis shall be required for any project which, although not located in a Noise Impact Zone, has the potential to result in a significant increase in noise levels to sensitive receptors in the community.

An acoustical analysis and report shall be prepared by a person deemed qualified by the Director of Planning. The report shall describe the existing noise environment, the proposed project, the projected noise impact and, if required, the proposed mitigation to ensure conformance with applicable standards.

County of Imperial Municipal Code

The County of Imperial Municipal Code establishes the following applicable standards related to noise.

90702.00 – Sound level limits

A. It is unlawful for any person to cause noise by any means to the extent that the applicable one-hour average sound level set out in the following table (see Table C) is exceeded, at any location in the county of Imperial on or beyond the boundaries of the property on which the noise is produced.

Table C – County of Imperial Municipal Code Sound Level Limits

Land Use Zone	Time of Day	One Hour Average Sound Level (decibels)
1. Residential:	7 a.m. to 10 p.m.	50
All R-1	10 p.m. to 7 a.m.	45
2. Residential:	7 a.m. to 10 p.m.	55
All R-2	10 p.m. to 7 a.m.	50
3. Residential:	7 a.m. to 10 p.m.	55
R-3, R-4 & all Other Residential	10 p.m. to 7 a.m.	50
4. All commercial	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
5. Manufacturing, all other industrial, including agricultural & extraction industry	Anytime	70
6. General industrial	Anytime	75

Source: County of Imperial, 2015.

B. The sound level limit between two zoning districts (different land uses) shall be measured at the property line between the properties.

C. Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of subsection A of this section, measured at or beyond six feet from the boundary of the easement upon which the equipment is located.

5.0 EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the proposed project area is generally characterized by vehicle traffic on Best Avenue, which is located adjacent to the east side of the project site as well as train noise from the UPRR that runs through the western portion of the project site. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

5.1 Noise Measurement Equipment

The noise measurements were taken using three Larson Davis Model LXT1 Type 1 sound level meters programmed in "slow" mode to record the sound pressure level at 1-second intervals for 24 hours in "A" weighted form. In addition, the L_{eq} averaged over the entire measuring time and L_{max} were recorded with both sound level meters. The sound level meters and microphones were mounted on fences and power poles on the project site, in the vicinity of the nearby homes. The noise meters were mounted on fences and poles that were placed between four and six feet above the ground and were equipped with windscreens during all measurements. The noise meters were calibrated before and after the monitoring using a Larson Davis Cal200 calibrator. All noise level measurement equipment meets American National Standards Institute specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

Noise Measurement Locations

The noise monitoring locations were selected in order to obtain the existing noise levels on the project site, in the vicinity of the nearby homes. Descriptions of the noise monitoring sites are provided below in Table D and are shown in Figure 3. Appendix A includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 12:48 p.m. on Thursday, April, 22, 2021 and 1:09 p.m. on Friday, April 23, 2021. At the start of the noise measurements, the sky was clear (no clouds), the temperature was 80 degrees Fahrenheit, the humidity was 45 percent, barometric pressure was 29.89 inches of mercury, and the wind was blowing around four miles per hour. Overnight, the temperature dropped to 53 degrees Fahrenheit. At the conclusion of the noise measurements, the sky was hazy, the temperature was 82 degrees Fahrenheit, the humidity was 23 percent, barometric pressure was 29.99 inches of mercury, and the wind was blowing around seven miles per hour.

5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table D. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 1-hour intervals. Table D also shows the L_{eq}, L_{max}, and CNEL, based on the entire measurement time. The noise monitoring data printouts are included in Appendix B. Figure 4 shows a graph of the 24-hour noise measurements.

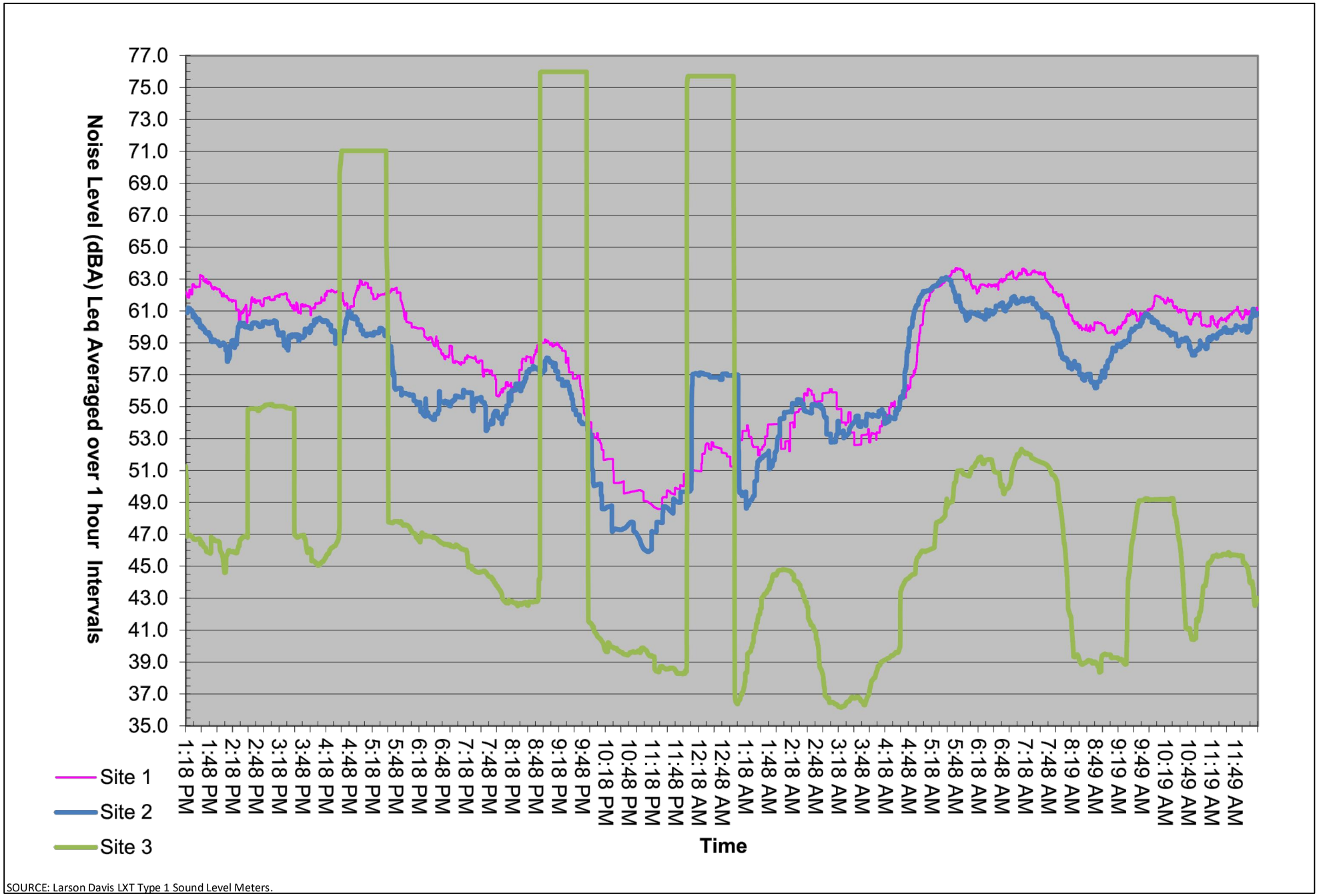
Table D – Existing (Ambient) Noise Level Measurements

Site No.	Site Description	Average (dBA L_{eq})		1-hr Average (dBA L_{eq}/Time)		Average (dBA CNEL)
		Daytime[1]	Nighttime[2]	Minimum	Maximum	
1	Located near the southeast corner of the project site, on a power pole, approximately 55 feet west of Best Avenue centerline.	62.0	56.2	48.6 11:23 p.m.	63.7 5:49 a.m.	64.8
2	Located near the northeast corner of the project site, on a power pole, approximately 60 feet west of Best Avenue centerline.	60.2	55.6	45.9 11:26 p.m.	63.1 5:50 a.m.	63.9
3	Located near the northwest corner of the project site, on a fence, approximately 115 feet west of the BNSF Railroad.	66.5	64.9	36.1 3:42 a.m.	76.0 9:16 p.m.	73.3

Notes:
[1] Daytime is defined as 7:00 a.m. to 10:00 p.m. (Section 90702.00(A) of the Municipal Code)
[2] Nighttime define as 10:00 p.m. to 7:00 a.m. (Section 90702.00(A) of the Municipal Code)
Source: Noise measurements taken between Thursday, April 22 and Friday, April 23, 2021.

VISTA ENVIRONMENTAL

Figure 3
Field Noise Monitoring Locations



SOURCE: Larson Davis LXT Type 1 Sound Level Meters.

VISTA ENVIRONMENTAL

Figure 4
Field Noise Measurements Graph

6.0 MODELING PARAMETERS AND ASSUMPTIONS

6.1 Construction Noise

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table E below provides a list of the construction equipment anticipated to be used for each phase of construction as detailed in *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis Brawley Solar Energy Facility Project* (Air Quality Analysis), prepared by Vista Environmental, May 13, 2021.

Table E – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor[1] (percent)	Spec 721.560 Lmax at 50 feet[2] (dBA, slow[3])	Actual Measured Lmax at 50 feet[4] (dBA, slow[3])
Site Preparation				
Bore/Drill Rig	2	20	84	79
Excavators	2	40	85	81
Rubber Tired Dozers	3	40	85	83
Tractors/Loaders/Backhoes	4	40	84	N/A
PV System Installation and Testing				
Aerial Lifts (Man Lift)	2	40	84	N/A
Air Compressor	1	40	80	78
Cranes	2	16	85	81
Forklifts (Gradall)	3	40	85	83
Generator Set	1	50	82	81
Graders	1	40	85	N/A
Off-Hwy Trucks (Flat Bed Truck)	2	40	84	74
Tractors/Loaders/Backhoes	3	40	84	N/A
Welders	1	40	73	74
Site Cleanup and Restoration				
Graders	2	40	85	N/A
Rubber Tired Dozers	2	40	85	83
Front End Loaders	2	40	80	79
Tractors/Loaders/Backhoes	2	40	84	N/A

Notes:
[1] Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.
[2] Spec 721.560 is the equipment noise level utilized by the RCNM program.
[3] The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.
[4] Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.
Source: Federal Highway Administration, 2006 and CalEEMod default equipment mix.

Table E also shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby homes have been calculated according to the equipment noise levels and usage factors listed in

Table E and through use of the RCNM. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two nosiest pieces of equipment as detailed in the FTA Manual.

6.2 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the project site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage to the structures at the highest levels. Table F gives approximate vibration levels for particular construction equipment that is provided by the FTA, however it should be noted that not all of these equipment types would be used during construction of the proposed project. The data in Table F provides a reasonable estimate for a wide range of soil conditions.

Table F – Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v)at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, 2018.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table F and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table E.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- 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.

7.2 Generation of Noise Levels in Excess of Standards

The proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include: 1) Site Preparation; 2) PV System Installation and Testing, and 3) Site Clean-up and Restoration. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the project site are single-family homes located as near as 40 feet to the north side of the project site (near the northwest corner of the project site). There are also homes located on the east side of Best Avenue that are as near as 120 feet east of the project site

The General Plan Noise Element includes Construction Noise Standards that limits the noise created from construction equipment to 75 dB Leq, averaged over an eight (8) hour period at the nearest sensitive receptor. In addition, the Construction Noise Standards limit construction equipment operation to between the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays.

Construction noise impacts to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table E – Construction Equipment Noise Emissions and Usage Factors. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. Since the County's construction noise standard is based on the noise level over an 8-hour period and in a typical day the proposed construction equipment would operate over the entire project site, the use of the methodology detailed in the FTA Manual for a General Assessment would provide a reasonable estimate of the

construction-related noise levels created by the proposed project. The results are shown below in Table G and the RCNM printouts are provided in Appendix D.

Table G – Construction Noise Levels at the Nearby Homes

Construction Phase	Construction Noise Level (dBA Leq) at:		
	Home to Northwest[1]	Home to Northeast[2]	Home to Southeast[3]
Site Preparation	52	52	52
PV System Installation and Testing	53	53	53
Site Clean-Up and Restoration	52	52	52
Construction Noise Threshold[4]	**75**	**75**	**75**
Ambient Daytime Noise Level	66.5	60.2	62.0
Exceed Thresholds?	**No**	**No**	**No**

[1] The distance from the center of the project site to the home to the northwest was measured at 2,900 feet.
[2] The distance from the center of the project site to the homes to the northeast was measured at 2,900 feet.
[3] The distance from the center of the project site to the home to the southeast was measured at 2,850 feet.
[4] Construction Noise Threshold obtained from the General Plan Noise Element (County of Imperial, 2015).
Source: RCNM, Federal Highway Administration, 2006

Table G shows that greatest construction noise impacts would be as high as 53 dBA Leq during the PV system installation and testing phase at the nearest homes to the northwest, northeast, and southeast of the project site. All calculated construction noise levels shown in Table G are within the City's construction noise standard of 75 dBA and would also be below the existing ambient daytime noise levels in the vicinity of the nearby homes. Therefore, through adherence to the limitation of allowable construction times provided in the General Plan Noise Element, construction-related noise levels would not exceed any standards established in the General Plan or Noise Ordinance nor would construction activities create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

Operational-Related Noise

The proposed project would consist of the development of a solar facility with a BESS and a substation. Since the proposed project would be operated on an unstaffed basis and monitored remotely from the Brawley Geothermal Power Plant control room, operation of the proposed project would not typically generate any additional vehicle traffic on the nearby roadways. As such, potential noise impacts associated with the operations of the proposed project would be limited to onsite noise sources. The proposed PV solar panels do not create any operational noise, however the proposed BESS Enclosures (AC Unit noise), Power Conversion System (PCS), Power Distribution Center (PDC) that would be located at the BESS, and auxiliary transformers, and Battery Step Up Transformer that would be located at the proposed substation are known sources of noise that have been analyzed below.

Both the General Plan Noise Element and Section 90702.00 provide the same noise level limits at the property line of the nearby homes of 50 dBA Leq-1hour between 7 a.m. and 10 p.m. and 45 dBA Leq-1hour between 10 p.m. and 7 a.m.. When the ambient noise level is equal to or exceeds the above noise standards, the proposed noise source shall not exceed the ambient plus 3 dB Leq.

In order to determine the noise impacts from the operation of onsite noise making equipment, noise specifications from previously prepared noise reports were obtained and are shown in Table H. The noise levels from each source were calculated through use of standard geometric spreading of noise from a

point source with a drop-off rate of 6 dB for each doubling of the distance between the source and receiver.

Table H – Operational Noise Levels at the Nearby Homes

Noise Source	Home to Northwest		Home to Northeast		Home to Southeast	
	Distance - Source to Home (feet)	Noise Level[1] (dBA Leq)	Distance - Source to Home (feet)	Noise Level[1] (dBA Leq)	Distance - Source to Home (feet)	Noise Level[1] (dBA Leq)
BESS Enclosures[2]	5,050	25	5,100	25	850	40
Power Conversion System[3]	5,050	22	5,100	22	850	38
Power Distribution Center[4]	5,050	22	5,100	22	850	38
Auxiliary Transformers[5]	5,030	31	5,280	31	1,150	44
Battery Step up Transformer[6]	5,030	31	5,280	31	850	47
Combined Noise Levels		**35**		**35**		**50**
County Noise Standard[7] (day/night)		**69.5/67.9**		**63.2/58.6**		**65.0/59.2**
Exceed County Noise Standards?		**No/No**		**No/No**		**No/No**

Notes:
[1] The noise levels were calculated through use of standard geometric spreading of noise from a point source with a drop-off rate of 6 dB for each doubling of the distance between the source and receiver.
[2] BESS Enclosures is based on a reference noise measurement of 88.6 dBA at 1 meter.
[3] Power Conversion System is based on a reference noise measurement of 86.1 dBA at 1 meter.
[4] Power Distribution Center is based on a reference noise measurement of 86.1 dBA at 1 meter.
[5] Auxiliary Transformers are based on a reference noise measurement of 95.1 dBA at 1 meter.
[6] Battery Step up Transformer is based on a reference noise measurement of 95.1 dBA at 1 meter.
[7] County Noise Standard based on ambient noise level shown in Table D plus 3 dB at the nearby homes.

Table H shows that the proposed project's onsite operational noise from the anticipated onsite noise sources would not exceed the applicable noise standards at the nearby homes. Therefore, operational onsite noise impacts would be less than significant

Level of Significance

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include: 1) Site Preparation; 2) PV System Installation and Testing, and 3) Site Clean-up and Restoration. Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptor to the project site is a single-family home located as near as 40 feet to the north side of the project site (near the northwest corner of the project site).

Since neither the Municipal Code nor the General Plan provides any thresholds related to vibration, Caltrans guidance that is detailed above in Section 4.2 has been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table F above a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest home (40 feet away) would be 0.06 inch per second PPV. The vibration level at the nearest home, would be below the 0.25 inch per second PPV threshold detailed above. Impacts would be less than significant.

Operations-Related Vibration Impacts

The proposed project would consist of the operation of a solar energy facility. The on-going operation of the proposed project would not include the operation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from the operation of the proposed project.

Level of Significance

Less than significant impact.

7.4 Aircraft Noise

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is Brawley Municipal Airport that is located as near as 1.5 mile south of the project site. The project site is located outside of the 60 dBA CNEL noise contours of Brawley Municipal Airport and no sensitive receptors would be introduced to the project site through implementation of the proposed project. No impact would occur from aircraft noise.

Level of Significance

No impact would occur.

8.0 REFERENCES

California Department of Transportation, *2016 Annual Average Daily Truck Traffic on the California State Highway System*, 2018.

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation- and Construction-Induced Vibration Guidance Manual*, September 2013.

County of Imperial, *Noise Element County of Imperial General Plan*, October 6, 2015.

County of Imperial, *County of Imperial, California Codified Ordinances*, 2020.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* September 2018.

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide,* January, 2006.

Vista Environmental, *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis Brawley Solar Energy Facility Project,* May 13, 2021.

APPENDIX A

Field Noise Measurements Photo Index

Noise Measurement Site 1 - looking north

Noise Measurement Site 1 - looking northeast

Noise Measurement Site 1 - looking east

Noise Measurement Site 1 - looking southeast

Noise Measurement Site 1 - looking south

Noise Measurement Site 1 - looking southwest

Noise Measurement Site 1 - looking west

Noise Measurement Site 1 - looking northwest

Noise Measurement Site 2 - looking north

Noise Measurement Site 2 - looking northeast

Noise Measurement Site 2 - looking east

Noise Measurement Site 2 - looking southeast

Noise Measurement Site 2 - looking south

Noise Measurement Site 2 - looking southwest

Noise Measurement Site 2 - looking west

Noise Measurement Site 2 - looking northwest

Noise Measurement Site 3 - looking north

Noise Measurement Site 3 - looking northeast

Noise Measurement Site 3 - looking east

Noise Measurement Site 3 - looking southeast

Noise Measurement Site 3 - looking south

Noise Measurement Site 3 - looking southwest

Noise Measurement Site 3 - looking west

Noise Measurement Site 3 - looking northwest

APPENDIX B

Field Noise Measurements Printouts

Site 1 - Near Southeast Corner of Project Site

April 22, 2021 12:48:22 PM Leq Daytime = 62.0
ampling Time = 1 s Freq Weighting=A Leq Nighttime = 56.2
Record Num = 86402 CNEL(24hr)= 64.8
Leq = 59.9 Ldn(24hr)= 64.6
Min = 39.5 Min Leq hr at 11:23 PM 48.6
Max = 85.7 Max Leq hr at 5:49 AM 63.7

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
57.7	12:48:22		57.7	57.7
65.7	12:48:23		65.7	65.7
69.3	12:48:24		69.3	69.3
70.1	12:48:25		70.1	70.1
68.6	12:48:26		68.6	68.6
67.5	12:48:27		67.5	67.5
64.6	12:48:28		64.6	64.6
64.6	12:48:29		64.6	64.6
61.4	12:48:30		61.4	61.4
58.2	12:48:31		58.2	58.2
57.0	12:48:32		57.0	57.0
63.2	12:48:33		63.2	63.2
63.4	12:48:34		63.4	63.4
69.1	12:48:35		69.1	69.1
64.9	12:48:36		64.9	64.9
60.7	12:48:37		60.7	60.7
56.7	12:48:38		56.7	56.7
55.7	12:48:39		55.7	55.7
53.5	12:48:40		53.5	53.5
52.2	12:48:41		52.2	52.2
52.7	12:48:42		52.7	52.7
54.3	12:48:43		54.3	54.3
65.1	12:48:44		65.1	65.1
63.1	12:48:45		63.1	63.1
61.1	12:48:46		61.1	61.1
59.6	12:48:47		59.6	59.6
59.1	12:48:48		59.1	59.1
60.0	12:48:49		60.0	60.0
60.6	12:48:50		60.6	60.6
60.9	12:48:51		60.9	60.9
60.7	12:48:52		60.7	60.7
64.7	12:48:53		64.7	64.7
65.1	12:48:54		65.1	65.1
63.1	12:48:55		63.1	63.1
59.3	12:48:56		59.3	59.3
59.1	12:48:57		59.1	59.1
58.1	12:48:58		58.1	58.1
60.8	12:48:59		60.8	60.8
57.8	12:49:00		57.8	57.8
57.5	12:49:01		57.5	57.5
61.6	12:49:02		61.6	61.6
63.6	12:49:03		63.6	63.6
69.5	12:49:04		69.5	69.5
65.5	12:49:05		65.5	65.5
61.7	12:49:06		61.7	61.7
59.2	12:49:07		59.2	59.2
60.7	12:49:08		60.7	60.7
63.5	12:49:09		63.5	63.5
63.7	12:49:10		63.7	63.7
67.1	12:49:11		67.1	67.1
67.4	12:49:12		67.4	67.4
64.6	12:49:13		64.6	64.6
61.7	12:49:14		61.7	61.7
63.2	12:49:15		63.2	63.2
61.4	12:49:16		61.4	61.4
63.9	12:49:17		63.9	63.9
69.4	12:49:18		69.4	69.4
68.0	12:49:19		68.0	68.0
68.4	12:49:20		68.4	68.4
64.3	12:49:21		64.3	64.3
60.7	12:49:22		60.7	60.7
67.8	12:49:23		67.8	67.8
63.2	12:49:24		63.2	63.2
67.8	12:49:25		67.8	67.8
65.9	12:49:26		65.9	65.9
65.3	12:49:27		65.3	65.3
62.0	12:49:28		62.0	62.0
69.7	12:49:29		69.7	69.7
69.3	12:49:30		69.3	69.3
67.7	12:49:31		67.7	67.7
69.3	12:49:32		69.3	69.3
66.3	12:49:33		66.3	66.3
64.7	12:49:34		64.7	64.7
64.2	12:49:35		64.2	64.2
70.7	12:49:36		70.7	70.7
69.5	12:49:37		69.5	69.5
65.5	12:49:38		65.5	65.5
61.5	12:49:39		61.5	61.5
59.8	12:49:40		59.8	59.8
58.5	12:49:41		58.5	58.5
57.9	12:49:42		57.9	57.9
61.1	12:49:43		61.1	61.1
62.8	12:49:44		62.8	62.8
68.7	12:49:45		68.7	68.7
64.6	12:49:46		64.6	64.6
63.2	12:49:47		63.2	63.2
61.2	12:49:48		61.2	61.2
69.6	12:49:49		69.6	69.6
68.3	12:49:50		68.3	68.3
70.8	12:49:51		70.8	70.8
66.8	12:49:52		66.8	66.8
72.7	12:49:53		72.7	72.7
71.6	12:49:54		71.6	71.6
73.6	12:49:55		73.6	73.6
69.0	12:49:56		69.0	69.0
74.8	12:49:57		74.8	74.8
71.3	12:49:58		71.3	71.3
72.1	12:49:59		72.1	72.1
77.8	12:50:00		77.8	77.8
73.6	12:50:01		73.6	73.6
69.4	12:50:02		69.4	69.4
65.3	12:50:03		65.3	65.3
63.2	12:50:04		63.2	63.2
63.0	12:50:05		63.0	63.0
61.6	12:50:06		61.6	61.6
59.0	12:50:07		59.0	59.0
55.6	12:50:08		55.6	55.6
52.5	12:50:09		52.5	52.5
50.2	12:50:10		50.2	50.2
48.2	12:50:11		48.2	48.2
47.9	12:50:12		47.9	47.9
45.8	12:50:13		45.8	45.8
44.8	12:50:14		44.8	44.8
45.2	12:50:15		45.2	45.2
45.3	12:50:16		45.3	45.3
48.7	12:50:17		48.7	48.7
52.4	12:50:18		52.4	52.4
51.3	12:50:19		51.3	51.3
49.3	12:50:20		49.3	49.3
46.5	12:50:21		46.5	46.5
44.7	12:50:22		44.7	44.7
45.0	12:50:23		45.0	45.0
44.8	12:50:24		44.8	44.8
45.2	12:50:25		45.2	45.2
48.3	12:50:26		48.3	48.3
46.9	12:50:27		46.9	46.9
46.3	12:50:28		46.3	46.3
45.5	12:50:29		45.5	45.5
43.8	12:50:30		43.8	43.8
43.5	12:50:31		43.5	43.5
45.3	12:50:32		45.3	45.3
47.8	12:50:33		47.8	47.8
47.0	12:50:34		47.0	47.0
55.0	12:50:35		55.0	55.0
55.2	12:50:36		55.2	55.2
51.9	12:50:37		51.9	51.9
49.0	12:50:38		49.0	49.0
48.1	12:50:39		48.1	48.1
45.9	12:50:40		45.9	45.9
45.2	12:50:41		45.2	45.2
47.9	12:50:42		47.9	47.9
49.8	12:50:43		49.8	49.8
48.4	12:50:44		48.4	48.4
49.4	12:50:45		49.4	49.4
49.0	12:50:46		49.0	49.0
52.5	12:50:47		52.5	52.5
53.6	12:50:48		53.6	53.6
50.6	12:50:49		50.6	50.6
48.2	12:50:50		48.2	48.2
47.4	12:50:51		47.4	47.4
46.6	12:50:52		46.6	46.6
45.7	12:50:53		45.7	45.7
43.9	12:50:54		43.9	43.9
43.0	12:50:55		43.0	43.0
43.5	12:50:56		43.5	43.5
45.6	12:50:57		45.6	45.6
50.0	12:50:58		50.0	50.0
48.7	12:50:59		48.7	48.7
47.0	12:51:00		47.0	47.0
47.0	12:51:01		47.0	47.0
49.6	12:51:02		49.6	49.6
49.3	12:51:03		49.3	49.3
50.8	12:51:04		50.8	50.8
50.7	12:51:05		50.7	50.7
48.1	12:51:06		48.1	48.1
46.9	12:51:07		46.9	46.9
47.8	12:51:08		47.8	47.8
46.8	12:51:09		46.8	46.8
46.6	12:51:10		46.6	46.6
50.4	12:51:11		50.4	50.4

Site 2 - Near Northeast Corner of Project Site

April 22, 2021 1:02:45 PM Leq Daytime = 60.2
ampling Time = 1 s Freq Weighting=A Leq Nighttime = 55.6
Record Num = 86402 CNEL(24hr)= 63.9
Leq = 58.5 Ldn(24hr)= 63.7
Min = 39.6 Min Leq hr at 11:26 PM 45.9
Max = 84.6 Max Leq hr at 5:50 AM 63.1

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
62.5	13:02:45		62.5	62.5
69.0	13:02:46		69.0	69.0
64.9	13:02:47		64.9	64.9
67.9	13:02:48		67.9	67.9
64.5	13:02:49		64.5	64.5
62.9	13:02:50		62.9	62.9
68.9	13:02:51		68.9	68.9
65.5	13:02:52		65.5	65.5
63.7	13:02:53		63.7	63.7
61.7	13:02:54		61.7	61.7
59.4	13:02:55		59.4	59.4
64.0	13:02:56		64.0	64.0
64.8	13:02:57		64.8	64.8
66.0	13:02:58		66.0	66.0
65.9	13:02:59		65.9	65.9
62.7	13:03:00		62.7	62.7
60.0	13:03:01		60.0	60.0
67.1	13:03:02		67.1	67.1
64.3	13:03:03		64.3	64.3
62.0	13:03:04		62.0	62.0
60.4	13:03:05		60.4	60.4
60.7	13:03:06		60.7	60.7
59.5	13:03:07		59.5	59.5
58.5	13:03:08		58.5	58.5
57.7	13:03:09		57.7	57.7
57.3	13:03:10		57.3	57.3
57.4	13:03:11		57.4	57.4
61.3	13:03:12		61.3	61.3
67.5	13:03:13		67.5	67.5
63.5	13:03:14		63.5	63.5
60.2	13:03:15		60.2	60.2
59.9	13:03:16		59.9	59.9
57.9	13:03:17		57.9	57.9
56.9	13:03:18		56.9	56.9
58.5	13:03:19		58.5	58.5
62.5	13:03:20		62.5	62.5
61.1	13:03:21		61.1	61.1
58.4	13:03:22		58.4	58.4
57.8	13:03:23		57.8	57.8
57.3	13:03:24		57.3	57.3
57.9	13:03:25		57.9	57.9
60.9	13:03:26		60.9	60.9
62.3	13:03:27		62.3	62.3
59.1	13:03:28		59.1	59.1
57.7	13:03:29		57.7	57.7
56.9	13:03:30		56.9	56.9
55.1	13:03:31		55.1	55.1
59.6	13:03:32		59.6	59.6
62.9	13:03:33		62.9	62.9
61.8	13:03:34		61.8	61.8
63.6	13:03:35		63.6	63.6
62.2	13:03:36		62.2	62.2
65.6	13:03:37		65.6	65.6
66.3	13:03:38		66.3	66.3
63.9	13:03:39		63.9	63.9
63.2	13:03:40		63.2	63.2
63.4	13:03:41		63.4	63.4
60.4	13:03:42		60.4	60.4
57.9	13:03:43		57.9	57.9
56.3	13:03:44		56.3	56.3
56.0	13:03:45		56.0	56.0
56.9	13:03:46		56.9	56.9
57.4	13:03:47		57.4	57.4
55.7	13:03:48		55.7	55.7
56.9	13:03:49		56.9	56.9
56.7	13:03:50		56.7	56.7
55.4	13:03:51		55.4	55.4
56.2	13:03:52		56.2	56.2
55.6	13:03:53		55.6	55.6
55.9	13:03:54		55.9	55.9
57.3	13:03:55		57.3	57.3
57.6	13:03:56		57.6	57.6
58.3	13:03:57		58.3	58.3
59.7	13:03:58		59.7	59.7
62.4	13:03:59		62.4	62.4
60.6	13:04:00		60.6	60.6
64.0	13:04:01		64.0	64.0
67.0	13:04:02		67.0	67.0
65.1	13:04:03		65.1	65.1
62.7	13:04:04		62.7	62.7
60.0	13:04:05		60.0	60.0
61.9	13:04:06		61.9	61.9
64.4	13:04:07		64.4	64.4
65.2	13:04:08		65.2	65.2
62.9	13:04:09		62.9	62.9
61.0	13:04:10		61.0	61.0
59.4	13:04:11		59.4	59.4
59.6	13:04:12		59.6	59.6
58.7	13:04:13		58.7	58.7
58.0	13:04:14		58.0	58.0
59.7	13:04:15		59.7	59.7
59.1	13:04:16		59.1	59.1
57.6	13:04:17		57.6	57.6
66.1	13:04:18		66.1	66.1
63.2	13:04:19		63.2	63.2
59.8	13:04:20		59.8	59.8
56.9	13:04:21		56.9	56.9
55.2	13:04:22		55.2	55.2
54.0	13:04:23		54.0	54.0
53.7	13:04:24		53.7	53.7
52.7	13:04:25		52.7	52.7
52.8	13:04:26		52.8	52.8
52.3	13:04:27		52.3	52.3
52.6	13:04:28		52.6	52.6
53.8	13:04:29		53.8	53.8
53.7	13:04:30		53.7	53.7
53.4	13:04:31		53.4	53.4
63.8	13:04:32		63.8	63.8
61.5	13:04:33		61.5	61.5
58.6	13:04:34		58.6	58.6
55.6	13:04:35		55.6	55.6
54.3	13:04:36		54.3	54.3
55.2	13:04:37		55.2	55.2
54.6	13:04:38		54.6	54.6
53.6	13:04:39		53.6	53.6
53.5	13:04:40		53.5	53.5
53.1	13:04:41		53.1	53.1
52.6	13:04:42		52.6	52.6
51.9	13:04:43		51.9	51.9
53.0	13:04:44		53.0	53.0
54.5	13:04:45		54.5	54.5
54.0	13:04:46		54.0	54.0
53.4	13:04:47		53.4	53.4
53.2	13:04:48		53.2	53.2
51.8	13:04:49		51.8	51.8
51.2	13:04:50		51.2	51.2
52.2	13:04:51		52.2	52.2
53.7	13:04:52		53.7	53.7
53.2	13:04:53		53.2	53.2
52.4	13:04:54		52.4	52.4
52.3	13:04:55		52.3	52.3
53.4	13:04:56		53.4	53.4
52.6	13:04:57		52.6	52.6
52.9	13:04:58		52.9	52.9
53.7	13:04:59		53.7	53.7
53.8	13:05:00		53.8	53.8
54.2	13:05:01		54.2	54.2
54.6	13:05:02		54.6	54.6
53.5	13:05:03		53.5	53.5
51.9	13:05:04		51.9	51.9
50.8	13:05:05		50.8	50.8
51.2	13:05:06		51.2	51.2
52.3	13:05:07		52.3	52.3
52.6	13:05:08		52.6	52.6
52.7	13:05:09		52.7	52.7
53.1	13:05:10		53.1	53.1
53.0	13:05:11		53.0	53.0
54.0	13:05:12		54.0	54.0
54.5	13:05:13		54.5	54.5
53.8	13:05:14		53.8	53.8
54.3	13:05:15		54.3	54.3
54.4	13:05:16		54.4	54.4
53.0	13:05:17		53.0	53.0
52.8	13:05:18		52.8	52.8
52.3	13:05:19		52.3	52.3
52.0	13:05:20		52.0	52.0
57.5	13:05:21		57.5	57.5
62.9	13:05:22		62.9	62.9
65.3	13:05:23		65.3	65.3
63.7	13:05:24		63.7	63.7
63.7	13:05:25		63.7	63.7
63.0	13:05:26		63.0	63.0
61.5	13:05:27		61.5	61.5
59.9	13:05:28		59.9	59.9
58.0	13:05:29		58.0	58.0
57.1	13:05:30		57.1	57.1
56.6	13:05:31		56.6	56.6
55.6	13:05:32		55.6	55.6
54.6	13:05:33		54.6	54.6
54.3	13:05:34		54.3	54.3

Site 3 - Near Northwest Corner of Project Site

April 22, 2021 1:09:16 PM Leq Daytime = 66.5
ampling Time = 1 s Freq Weighting=A Leq Nighttime = 64.9
Record Num = 86402 CNEL(24hr)= 73.3
Leq = 65.8 Ldn(24hr)= 72.5
Min = 30.8 Min Leq hr at 3:42 AM 36.1
Max = 106.8 Max Leq hr at 9:16 PM 76.0

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
66.8	13:09:16		66.8	66.8
63.8	13:09:17		63.8	63.8
66.4	13:09:18		66.4	66.4
69.0	13:09:19		69.0	69.0
70.7	13:09:20		70.7	70.7
64.3	13:09:21		64.3	64.3
62.2	13:09:22		62.2	62.2
64.5	13:09:23		64.5	64.5
60.8	13:09:24		60.8	60.8
66.9	13:09:25		66.9	66.9
62.7	13:09:26		62.7	62.7
68.5	13:09:27		68.5	68.5
64.9	13:09:28		64.9	64.9
61.1	13:09:29		61.1	61.1
57.1	13:09:30		57.1	57.1
53.7	13:09:31		53.7	53.7
50.5	13:09:32		50.5	50.5
49.0	13:09:33		49.0	49.0
48.0	13:09:34		48.0	48.0
47.9	13:09:35		47.9	47.9
48.6	13:09:36		48.6	48.6
46.6	13:09:37		46.6	46.6
44.5	13:09:38		44.5	44.5
43.4	13:09:39		43.4	43.4
43.1	13:09:40		43.1	43.1
42.5	13:09:41		42.5	42.5
39.7	13:09:42		39.7	39.7
48.9	13:09:43		48.9	48.9
58.0	13:09:44		58.0	58.0
54.9	13:09:45		54.9	54.9
55.6	13:09:46		55.6	55.6
56.8	13:09:47		56.8	56.8
58.8	13:09:48		58.8	58.8
59.7	13:09:49		59.7	59.7
57.2	13:09:50		57.2	57.2
55.2	13:09:51		55.2	55.2
58.7	13:09:52		58.7	58.7
58.3	13:09:53		58.3	58.3
59.6	13:09:54		59.6	59.6
58.8	13:09:55		58.8	58.8
58.8	13:09:56		58.8	58.8
59.0	13:09:57		59.0	59.0
62.4	13:09:58		62.4	62.4
60.9	13:09:59		60.9	60.9
64.6	13:10:00		64.6	64.6
60.7	13:10:01		60.7	60.7
57.3	13:10:02		57.3	57.3
53.4	13:10:03		53.4	53.4
55.7	13:10:04		55.7	55.7
57.6	13:10:05		57.6	57.6
55.1	13:10:06		55.1	55.1
61.9	13:10:07		61.9	61.9
60.1	13:10:08		60.1	60.1
59.5	13:10:09		59.5	59.5
56.3	13:10:10		56.3	56.3
53.1	13:10:11		53.1	53.1
74.4	13:10:12		74.4	74.4
76.2	13:10:13		76.2	76.2
72.1	13:10:14		72.1	72.1
68.2	13:10:15		68.2	68.2
64.0	13:10:16		64.0	64.0
60.3	13:10:17		60.3	60.3
57.3	13:10:18		57.3	57.3
60.8	13:10:19		60.8	60.8
61.5	13:10:20		61.5	61.5
57.9	13:10:21		57.9	57.9
57.3	13:10:22		57.3	57.3
69.5	13:10:23		69.5	69.5
75.4	13:10:24		75.4	75.4
71.2	13:10:25		71.2	71.2
67.0	13:10:26		67.0	67.0
62.9	13:10:27		62.9	62.9
59.4	13:10:28		59.4	59.4
63.3	13:10:29		63.3	63.3
64.0	13:10:30		64.0	64.0
61.4	13:10:31		61.4	61.4
63.9	13:10:32		63.9	63.9
73.2	13:10:33		73.2	73.2
69.6	13:10:34		69.6	69.6
66.3	13:10:35		66.3	66.3
66.6	13:10:36		66.6	66.6
68.4	13:10:37		68.4	68.4
66.7	13:10:38		66.7	66.7
63.4	13:10:39		63.4	63.4
60.5	13:10:40		60.5	60.5
57.4	13:10:41		57.4	57.4
54.0	13:10:42		54.0	54.0
51.1	13:10:43		51.1	51.1
48.0	13:10:44		48.0	48.0
45.1	13:10:45		45.1	45.1
44.1	13:10:46		44.1	44.1
43.6	13:10:47		43.6	43.6
42.4	13:10:48		42.4	42.4
42.2	13:10:49		42.2	42.2
43.4	13:10:50		43.4	43.4
42.2	13:10:51		42.2	42.2
41.4	13:10:52		41.4	41.4
40.8	13:10:53		40.8	40.8
41.0	13:10:54		41.0	41.0
42.5	13:10:55		42.5	42.5
45.5	13:10:56		45.5	45.5
44.5	13:10:57		44.5	44.5
42.4	13:10:58		42.4	42.4
41.0	13:10:59		41.0	41.0
40.1	13:11:00		40.1	40.1
48.7	13:11:01		48.7	48.7
50.9	13:11:02		50.9	50.9
48.3	13:11:03		48.3	48.3
45.8	13:11:04		45.8	45.8
44.4	13:11:05		44.4	44.4
42.9	13:11:06		42.9	42.9
42.0	13:11:07		42.0	42.0
40.9	13:11:08		40.9	40.9
39.5	13:11:09		39.5	39.5
38.8	13:11:10		38.8	38.8
37.9	13:11:11		37.9	37.9
37.6	13:11:12		37.6	37.6
37.9	13:11:13		37.9	37.9
37.4	13:11:14		37.4	37.4
36.9	13:11:15		36.9	36.9
36.9	13:11:16		36.9	36.9
36.9	13:11:17		36.9	36.9
36.9	13:11:18		36.9	36.9
36.9	13:11:19		36.9	36.9
40.2	13:11:20		40.2	40.2
41.0	13:11:21		41.0	41.0
39.0	13:11:22		39.0	39.0
38.0	13:11:23		38.0	38.0
37.2	13:11:24		37.2	37.2
36.8	13:11:25		36.8	36.8
40.1	13:11:26		40.1	40.1
39.3	13:11:27		39.3	39.3
38.7	13:11:28		38.7	38.7
38.3	13:11:29		38.3	38.3
39.9	13:11:30		39.9	39.9
48.7	13:11:31		48.7	48.7
45.5	13:11:32		45.5	45.5
44.0	13:11:33		44.0	44.0
41.7	13:11:34		41.7	41.7
40.9	13:11:35		40.9	40.9
40.6	13:11:36		40.6	40.6
40.7	13:11:37		40.7	40.7
41.1	13:11:38		41.1	41.1
40.5	13:11:39		40.5	40.5
40.1	13:11:40		40.1	40.1
39.7	13:11:41		39.7	39.7
39.7	13:11:42		39.7	39.7
39.9	13:11:43		39.9	39.9
40.2	13:11:44		40.2	40.2
40.0	13:11:45		40.0	40.0
39.5	13:11:46		39.5	39.5
39.2	13:11:47		39.2	39.2
40.1	13:11:48		40.1	40.1
40.6	13:11:49		40.6	40.6
40.6	13:11:50		40.6	40.6
39.9	13:11:51		39.9	39.9
39.8	13:11:52		39.8	39.8
39.0	13:11:53		39.0	39.0
38.6	13:11:54		38.6	38.6
38.4	13:11:55		38.4	38.4
38.9	13:11:56		38.9	38.9
39.1	13:11:57		39.1	39.1
38.4	13:11:58		38.4	38.4
38.1	13:11:59		38.1	38.1
38.7	13:12:00		38.7	38.7
38.3	13:12:01		38.3	38.3
38.7	13:12:02		38.7	38.7
38.8	13:12:03		38.8	38.8
39.1	13:12:04		39.1	39.1
38.6	13:12:05		38.6	38.6

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
50.9	12:51:12		50.9	50.9
50.2	12:51:13		50.2	50.2
53.5	12:51:14		53.5	53.5
53.5	12:51:15		53.5	53.5
50.5	12:51:16		50.5	50.5
49.5	12:51:17		49.5	49.5
49.3	12:51:18		49.3	49.3
49.7	12:51:19		49.7	49.7
52.9	12:51:20		52.9	52.9
53.9	12:51:21		53.9	53.9
53.1	12:51:22		53.1	53.1
52.0	12:51:23		52.0	52.0
50.9	12:51:24		50.9	50.9
48.8	12:51:25		48.8	48.8
46.9	12:51:26		46.9	46.9
45.7	12:51:27		45.7	45.7
45.1	12:51:28		45.1	45.1
47.3	12:51:29		47.3	47.3
48.5	12:51:30		48.5	48.5
49.3	12:51:31		49.3	49.3
51.0	12:51:32		51.0	51.0
54.7	12:51:33		54.7	54.7
53.8	12:51:34		53.8	53.8
56.1	12:51:35		56.1	56.1
67.4	12:51:36		67.4	67.4
72.8	12:51:37		72.8	72.8
70.7	12:51:38		70.7	70.7
67.1	12:51:39		67.1	67.1
63.8	12:51:40		63.8	63.8
61.2	12:51:41		61.2	61.2
58.6	12:51:42		58.6	58.6
56.7	12:51:43		56.7	56.7
54.9	12:51:44		54.9	54.9
55.9	12:51:45		55.9	55.9
56.5	12:51:46		56.5	56.5
53.3	12:51:47		53.3	53.3
49.8	12:51:48		49.8	49.8
46.6	12:51:49		46.6	46.6
50.0	12:51:50		50.0	50.0
55.2	12:51:51		55.2	55.2
55.0	12:51:52		55.0	55.0
54.6	12:51:53		54.6	54.6
54.6	12:51:54		54.6	54.6
51.5	12:51:55		51.5	51.5
49.1	12:51:56		49.1	49.1
46.5	12:51:57		46.5	46.5
45.6	12:51:58		45.6	45.6
48.3	12:51:59		48.3	48.3
50.2	12:52:00		50.2	50.2
54.3	12:52:01		54.3	54.3
53.6	12:52:02		53.6	53.6
50.0	12:52:03		50.0	50.0
47.1	12:52:04		47.1	47.1
51.7	12:52:05		51.7	51.7
56.9	12:52:06		56.9	56.9
56.0	12:52:07		56.0	56.0
53.2	12:52:08		53.2	53.2
50.9	12:52:09		50.9	50.9
51.1	12:52:10		51.1	51.1
51.1	12:52:11		51.1	51.1
49.9	12:52:12		49.9	49.9
50.6	12:52:13		50.6	50.6
52.6	12:52:14		52.6	52.6
54.2	12:52:15		54.2	54.2
54.1	12:52:16		54.1	54.1
54.3	12:52:17		54.3	54.3
54.7	12:52:18		54.7	54.7
56.5	12:52:19		56.5	56.5
59.0	12:52:20		59.0	59.0
57.7	12:52:21		57.7	57.7
56.0	12:52:22		56.0	56.0
55.0	12:52:23		55.0	55.0
54.1	12:52:24		54.1	54.1
52.7	12:52:25		52.7	52.7
51.8	12:52:26		51.8	51.8
53.7	12:52:27		53.7	53.7
54.4	12:52:28		54.4	54.4
53.2	12:52:29		53.2	53.2
52.0	12:52:30		52.0	52.0
51.0	12:52:31		51.0	51.0
50.6	12:52:32		50.6	50.6
51.2	12:52:33		51.2	51.2
51.9	12:52:34		51.9	51.9
52.5	12:52:35		52.5	52.5
51.1	12:52:36		51.1	51.1
50.8	12:52:37		50.8	50.8
50.6	12:52:38		50.6	50.6
50.4	12:52:39		50.4	50.4
52.0	12:52:40		52.0	52.0
51.5	12:52:41		51.5	51.5
53.3	12:52:42		53.3	53.3
54.7	12:52:43		54.7	54.7
53.1	12:52:44		53.1	53.1
50.5	12:52:45		50.5	50.5
48.4	12:52:46		48.4	48.4
47.4	12:52:47		47.4	47.4
48.8	12:52:48		48.8	48.8
52.9	12:52:49		52.9	52.9
56.7	12:52:50		56.7	56.7
58.0	12:52:51		58.0	58.0
58.1	12:52:52		58.1	58.1
59.9	12:52:53		59.9	59.9
60.6	12:52:54		60.6	60.6
58.6	12:52:55		58.6	58.6
55.9	12:52:56		55.9	55.9
55.2	12:52:57		55.2	55.2
55.5	12:52:58		55.5	55.5
57.9	12:52:59		57.9	57.9
57.2	12:53:00		57.2	57.2
57.0	12:53:01		57.0	57.0
53.9	12:53:02		53.9	53.9
51.7	12:53:03		51.7	51.7
49.7	12:53:04		49.7	49.7
50.4	12:53:05		50.4	50.4
51.0	12:53:06		51.0	51.0
48.5	12:53:07		48.5	48.5
48.3	12:53:08		48.3	48.3
47.3	12:53:09		47.3	47.3
45.5	12:53:10		45.5	45.5
44.1	12:53:11		44.1	44.1
43.7	12:53:12		43.7	43.7
43.5	12:53:13		43.5	43.5
46.8	12:53:14		46.8	46.8
49.8	12:53:15		49.8	49.8
52.4	12:53:16		52.4	52.4
52.0	12:53:17		52.0	52.0
51.5	12:53:18		51.5	51.5
49.5	12:53:19		49.5	49.5
47.5	12:53:20		47.5	47.5
48.3	12:53:21		48.3	48.3
56.3	12:53:22		56.3	56.3
59.5	12:53:23		59.5	59.5
57.7	12:53:24		57.7	57.7
56.9	12:53:25		56.9	56.9
58.3	12:53:26		58.3	58.3
60.2	12:53:27		60.2	60.2
64.1	12:53:28		64.1	64.1
66.5	12:53:29		66.5	66.5
65.1	12:53:30		65.1	65.1
63.1	12:53:31		63.1	63.1
61.8	12:53:32		61.8	61.8
59.0	12:53:33		59.0	59.0
60.9	12:53:34		60.9	60.9
59.5	12:53:35		59.5	59.5
56.2	12:53:36		56.2	56.2
53.2	12:53:37		53.2	53.2
51.1	12:53:38		51.1	51.1
52.9	12:53:39		52.9	52.9
56.5	12:53:40		56.5	56.5
54.2	12:53:41		54.2	54.2
51.6	12:53:42		51.6	51.6
49.0	12:53:43		49.0	49.0
55.0	12:53:44		55.0	55.0
57.8	12:53:45		57.8	57.8
56.6	12:53:46		56.6	56.6
53.3	12:53:47		53.3	53.3
50.8	12:53:48		50.8	50.8
48.7	12:53:49		48.7	48.7
49.2	12:53:50		49.2	49.2
48.4	12:53:51		48.4	48.4
46.1	12:53:52		46.1	46.1
45.1	12:53:53		45.1	45.1
45.0	12:53:54		45.0	45.0
44.1	12:53:55		44.1	44.1
46.0	12:53:56		46.0	46.0
45.7	12:53:57		45.7	45.7
44.4	12:53:58		44.4	44.4
44.2	12:53:59		44.2	44.2
45.6	12:54:00		45.6	45.6
47.9	12:54:01		47.9	47.9
49.2	12:54:02		49.2	49.2
48.1	12:54:03		48.1	48.1
46.8	12:54:04		46.8	46.8
46.0	12:54:05		46.0	46.0
43.6	12:54:06		43.6	43.6
45.5	12:54:07		45.5	45.5
48.2	12:54:08		48.2	48.2
47.4	12:54:09		47.4	47.4
45.0	12:54:10		45.0	45.0
44.3	12:54:11		44.3	44.3
43.6	12:54:12		43.6	43.6

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
55.0	13:05:35		55.0	55.0
54.7	13:05:36		54.7	54.7
55.9	13:05:37		55.9	55.9
55.4	13:05:38		55.4	55.4
54.8	13:05:39		54.8	54.8
54.7	13:05:40		54.7	54.7
55.1	13:05:41		55.1	55.1
54.6	13:05:42		54.6	54.6
54.8	13:05:43		54.8	54.8
54.1	13:05:44		54.1	54.1
54.5	13:05:45		54.5	54.5
54.7	13:05:46		54.7	54.7
55.2	13:05:47		55.2	55.2
55.8	13:05:48		55.8	55.8
62.0	13:05:49		62.0	62.0
69.1	13:05:50		69.1	69.1
71.4	13:05:51		71.4	71.4
68.9	13:05:52		68.9	68.9
65.3	13:05:53		65.3	65.3
62.2	13:05:54		62.2	62.2
59.1	13:05:55		59.1	59.1
57.0	13:05:56		57.0	57.0
56.3	13:05:57		56.3	56.3
55.8	13:05:58		55.8	55.8
55.1	13:05:59		55.1	55.1
54.1	13:06:00		54.1	54.1
54.3	13:06:01		54.3	54.3
54.6	13:06:02		54.6	54.6
55.7	13:06:03		55.7	55.7
55.4	13:06:04		55.4	55.4
55.0	13:06:05		55.0	55.0
53.3	13:06:06		53.3	53.3
52.7	13:06:07		52.7	52.7
52.7	13:06:08		52.7	52.7
52.1	13:06:09		52.1	52.1
52.1	13:06:10		52.1	52.1
52.5	13:06:11		52.5	52.5
51.3	13:06:12		51.3	51.3
51.2	13:06:13		51.2	51.2
52.4	13:06:14		52.4	52.4
52.6	13:06:15		52.6	52.6
51.9	13:06:16		51.9	51.9
52.6	13:06:17		52.6	52.6
52.0	13:06:18		52.0	52.0
52.3	13:06:19		52.3	52.3
53.4	13:06:20		53.4	53.4
54.1	13:06:21		54.1	54.1
53.8	13:06:22		53.8	53.8
53.7	13:06:23		53.7	53.7
52.9	13:06:24		52.9	52.9
51.9	13:06:25		51.9	51.9
52.6	13:06:26		52.6	52.6
52.3	13:06:27		52.3	52.3
53.4	13:06:28		53.4	53.4
53.4	13:06:29		53.4	53.4
52.2	13:06:30		52.2	52.2
51.5	13:06:31		51.5	51.5
52.3	13:06:32		52.3	52.3
54.3	13:06:33		54.3	54.3
54.6	13:06:34		54.6	54.6
55.1	13:06:35		55.1	55.1
57.2	13:06:36		57.2	57.2
54.7	13:06:37		54.7	54.7
52.8	13:06:38		52.8	52.8
51.7	13:06:39		51.7	51.7
51.7	13:06:40		51.7	51.7
52.3	13:06:41		52.3	52.3
52.2	13:06:42		52.2	52.2
51.6	13:06:43		51.6	51.6
51.9	13:06:44		51.9	51.9
52.9	13:06:45		52.9	52.9
53.0	13:06:46		53.0	53.0
52.7	13:06:47		52.7	52.7
52.4	13:06:48		52.4	52.4
53.2	13:06:49		53.2	53.2
52.1	13:06:50		52.1	52.1
50.6	13:06:51		50.6	50.6
51.3	13:06:52		51.3	51.3
52.4	13:06:53		52.4	52.4
53.5	13:06:54		53.5	53.5
52.4	13:06:55		52.4	52.4
52.7	13:06:56		52.7	52.7
51.7	13:06:57		51.7	51.7
52.5	13:06:58		52.5	52.5
55.5	13:06:59		55.5	55.5
54.3	13:07:00		54.3	54.3
53.2	13:07:01		53.2	53.2
52.2	13:07:02		52.2	52.2
50.3	13:07:03		50.3	50.3
49.7	13:07:04		49.7	49.7
51.2	13:07:05		51.2	51.2
53.1	13:07:06		53.1	53.1
52.7	13:07:07		52.7	52.7
53.0	13:07:08		53.0	53.0
53.4	13:07:09		53.4	53.4
52.6	13:07:10		52.6	52.6
53.5	13:07:11		53.5	53.5
54.8	13:07:12		54.8	54.8
53.2	13:07:13		53.2	53.2
52.6	13:07:14		52.6	52.6
53.1	13:07:15		53.1	53.1
53.5	13:07:16		53.5	53.5
54.0	13:07:17		54.0	54.0
52.7	13:07:18		52.7	52.7
53.5	13:07:19		53.5	53.5
55.2	13:07:20		55.2	55.2
54.2	13:07:21		54.2	54.2
53.7	13:07:22		53.7	53.7
53.4	13:07:23		53.4	53.4
52.4	13:07:24		52.4	52.4
52.6	13:07:25		52.6	52.6
52.8	13:07:26		52.8	52.8
52.2	13:07:27		52.2	52.2
53.1	13:07:28		53.1	53.1
53.0	13:07:29		53.0	53.0
52.6	13:07:30		52.6	52.6
51.7	13:07:31		51.7	51.7
51.2	13:07:32		51.2	51.2
50.5	13:07:33		50.5	50.5
49.4	13:07:34		49.4	49.4
49.4	13:07:35		49.4	49.4
51.7	13:07:36		51.7	51.7
52.7	13:07:37		52.7	52.7
51.8	13:07:38		51.8	51.8
51.7	13:07:39		51.7	51.7
52.7	13:07:40		52.7	52.7
52.0	13:07:41		52.0	52.0
53.2	13:07:42		53.2	53.2
53.8	13:07:43		53.8	53.8
52.7	13:07:44		52.7	52.7
51.7	13:07:45		51.7	51.7
52.5	13:07:46		52.5	52.5
50.7	13:07:47		50.7	50.7
50.2	13:07:48		50.2	50.2
52.0	13:07:49		52.0	52.0
51.7	13:07:50		51.7	51.7
52.4	13:07:51		52.4	52.4
53.3	13:07:52		53.3	53.3
52.0	13:07:53		52.0	52.0
52.3	13:07:54		52.3	52.3
51.6	13:07:55		51.6	51.6
52.6	13:07:56		52.6	52.6
53.2	13:07:57		53.2	53.2
52.3	13:07:58		52.3	52.3
52.8	13:07:59		52.8	52.8
55.4	13:08:00		55.4	55.4
59.4	13:08:01		59.4	59.4
67.6	13:08:02		67.6	67.6
73.3	13:08:03		73.3	73.3
71.8	13:08:04		71.8	71.8
68.3	13:08:05		68.3	68.3
64.9	13:08:06		64.9	64.9
62.1	13:08:07		62.1	62.1
59.4	13:08:08		59.4	59.4
57.1	13:08:09		57.1	57.1
55.4	13:08:10		55.4	55.4
54.0	13:08:11		54.0	54.0
52.5	13:08:12		52.5	52.5
52.3	13:08:13		52.3	52.3
52.4	13:08:14		52.4	52.4
53.4	13:08:15		53.4	53.4
52.9	13:08:16		52.9	52.9
52.5	13:08:17		52.5	52.5
52.7	13:08:18		52.7	52.7
53.7	13:08:19		53.7	53.7
53.8	13:08:20		53.8	53.8
55.1	13:08:21		55.1	55.1
58.0	13:08:22		58.0	58.0
62.0	13:08:23		62.0	62.0
66.9	13:08:24		66.9	66.9
68.9	13:08:25		68.9	68.9
68.3	13:08:26		68.3	68.3
65.5	13:08:27		65.5	65.5
62.5	13:08:28		62.5	62.5
59.4	13:08:29		59.4	59.4
56.6	13:08:30		56.6	56.6
54.8	13:08:31		54.8	54.8
54.2	13:08:32		54.2	54.2
55.6	13:08:33		55.6	55.6
54.1	13:08:34		54.1	54.1
53.2	13:08:35		53.2	53.2

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
38.5	13:12:06		38.5	38.5
38.4	13:12:07		38.4	38.4
38.2	13:12:08		38.2	38.2
37.4	13:12:09		37.4	37.4
37.5	13:12:10		37.5	37.5
37.6	13:12:11		37.6	37.6
38.0	13:12:12		38.0	38.0
38.2	13:12:13		38.2	38.2
38.2	13:12:14		38.2	38.2
38.4	13:12:15		38.4	38.4
38.1	13:12:16		38.1	38.1
38.0	13:12:17		38.0	38.0
39.0	13:12:18		39.0	39.0
39.0	13:12:19		39.0	39.0
39.6	13:12:20		39.6	39.6
40.1	13:12:21		40.1	40.1
39.6	13:12:22		39.6	39.6
39.0	13:12:23		39.0	39.0
38.2	13:12:24		38.2	38.2
38.3	13:12:25		38.3	38.3
37.7	13:12:26		37.7	37.7
37.7	13:12:27		37.7	37.7
37.3	13:12:28		37.3	37.3
37.0	13:12:29		37.0	37.0
37.0	13:12:30		37.0	37.0
36.8	13:12:31		36.8	36.8
37.0	13:12:32		37.0	37.0
38.1	13:12:33		38.1	38.1
41.6	13:12:34		41.6	41.6
41.8	13:12:35		41.8	41.8
41.3	13:12:36		41.3	41.3
40.9	13:12:37		40.9	40.9
41.3	13:12:38		41.3	41.3
41.4	13:12:39		41.4	41.4
41.8	13:12:40		41.8	41.8
41.3	13:12:41		41.3	41.3
40.3	13:12:42		40.3	40.3
41.2	13:12:43		41.2	41.2
42.5	13:12:44		42.5	42.5
41.4	13:12:45		41.4	41.4
41.2	13:12:46		41.2	41.2
41.7	13:12:47		41.7	41.7
41.8	13:12:48		41.8	41.8
41.3	13:12:49		41.3	41.3
40.6	13:12:50		40.6	40.6
40.2	13:12:51		40.2	40.2
40.1	13:12:52		40.1	40.1
40.5	13:12:53		40.5	40.5
40.5	13:12:54		40.5	40.5
42.6	13:12:55		42.6	42.6
42.6	13:12:56		42.6	42.6
42.4	13:12:57		42.4	42.4
41.5	13:12:58		41.5	41.5
41.0	13:12:59		41.0	41.0
40.4	13:13:00		40.4	40.4
40.3	13:13:01		40.3	40.3
40.3	13:13:02		40.3	40.3
39.4	13:13:03		39.4	39.4
39.1	13:13:04		39.1	39.1
38.7	13:13:05		38.7	38.7
38.9	13:13:06		38.9	38.9
38.9	13:13:07		38.9	38.9
39.2	13:13:08		39.2	39.2
39.7	13:13:09		39.7	39.7
39.4	13:13:10		39.4	39.4
39.5	13:13:11		39.5	39.5
40.7	13:13:12		40.7	40.7
42.2	13:13:13		42.2	42.2
41.9	13:13:14		41.9	41.9
40.7	13:13:15		40.7	40.7
40.0	13:13:16		40.0	40.0
40.1	13:13:17		40.1	40.1
40.2	13:13:18		40.2	40.2
39.5	13:13:19		39.5	39.5
39.1	13:13:20		39.1	39.1
38.9	13:13:21		38.9	38.9
38.9	13:13:22		38.9	38.9
39.0	13:13:23		39.0	39.0
39.0	13:13:24		39.0	39.0
38.6	13:13:25		38.6	38.6
38.2	13:13:26		38.2	38.2
37.7	13:13:27		37.7	37.7
37.0	13:13:28		37.0	37.0
36.9	13:13:29		36.9	36.9
37.3	13:13:30		37.3	37.3
38.1	13:13:31		38.1	38.1
39.2	13:13:32		39.2	39.2
38.8	13:13:33		38.8	38.8
38.2	13:13:34		38.2	38.2
38.6	13:13:35		38.6	38.6
38.6	13:13:36		38.6	38.6
38.6	13:13:37		38.6	38.6
37.9	13:13:38		37.9	37.9
37.5	13:13:39		37.5	37.5
37.7	13:13:40		37.7	37.7
37.4	13:13:41		37.4	37.4
37.3	13:13:42		37.3	37.3
37.9	13:13:43		37.9	37.9
39.0	13:13:44		39.0	39.0
41.5	13:13:45		41.5	41.5
41.0	13:13:46		41.0	41.0
41.5	13:13:47		41.5	41.5
41.2	13:13:48		41.2	41.2
40.2	13:13:49		40.2	40.2
40.8	13:13:50		40.8	40.8
40.6	13:13:51		40.6	40.6
41.2	13:13:52		41.2	41.2
40.3	13:13:53		40.3	40.3
39.4	13:13:54		39.4	39.4
38.7	13:13:55		38.7	38.7
38.6	13:13:56		38.6	38.6
38.6	13:13:57		38.6	38.6
38.7	13:13:58		38.7	38.7
39.1	13:13:59		39.1	39.1
39.6	13:14:00		39.6	39.6
39.8	13:14:01		39.8	39.8
39.9	13:14:02		39.9	39.9
39.2	13:14:03		39.2	39.2
39.0	13:14:04		39.0	39.0
39.2	13:14:05		39.2	39.2
39.6	13:14:06		39.6	39.6
39.2	13:14:07		39.2	39.2
40.4	13:14:08		40.4	40.4
40.8	13:14:09		40.8	40.8
39.9	13:14:10		39.9	39.9
39.8	13:14:11		39.8	39.8
40.1	13:14:12		40.1	40.1
40.0	13:14:13		40.0	40.0
40.3	13:14:14		40.3	40.3
40.0	13:14:15		40.0	40.0
39.6	13:14:16		39.6	39.6
40.1	13:14:17		40.1	40.1
40.2	13:14:18		40.2	40.2
39.9	13:14:19		39.9	39.9
39.6	13:14:20		39.6	39.6
40.8	13:14:21		40.8	40.8
41.9	13:14:22		41.9	41.9
41.5	13:14:23		41.5	41.5
42.2	13:14:24		42.2	42.2
43.7	13:14:25		43.7	43.7
44.0	13:14:26		44.0	44.0
43.8	13:14:27		43.8	43.8
46.3	13:14:28		46.3	46.3
45.0	13:14:29		45.0	45.0
43.7	13:14:30		43.7	43.7
43.9	13:14:31		43.9	43.9
43.0	13:14:32		43.0	43.0
45.9	13:14:33		45.9	45.9
45.8	13:14:34		45.8	45.8
47.7	13:14:35		47.7	47.7
46.4	13:14:36		46.4	46.4
43.5	13:14:37		43.5	43.5
42.3	13:14:38		42.3	42.3
43.3	13:14:39		43.3	43.3
43.0	13:14:40		43.0	43.0
43.6	13:14:41		43.6	43.6
43.9	13:14:42		43.9	43.9
44.6	13:14:43		44.6	44.6
47.5	13:14:44		47.5	47.5
48.3	13:14:45		48.3	48.3
50.2	13:14:46		50.2	50.2
46.9	13:14:47		46.9	46.9
43.7	13:14:48		43.7	43.7
41.9	13:14:49		41.9	41.9
41.8	13:14:50		41.8	41.8
43.6	13:14:51		43.6	43.6
41.9	13:14:52		41.9	41.9
41.3	13:14:53		41.3	41.3
43.0	13:14:54		43.0	43.0
46.3	13:14:55		46.3	46.3
49.9	13:14:56		49.9	49.9
51.2	13:14:57		51.2	51.2
50.4	13:14:58		50.4	50.4
50.7	13:14:59		50.7	50.7
47.4	13:15:00		47.4	47.4
46.1	13:15:01		46.1	46.1
46.2	13:15:02		46.2	46.2
44.8	13:15:03		44.8	44.8
43.9	13:15:04		43.9	43.9
42.3	13:15:05		42.3	42.3
43.2	13:15:06		43.2	43.2

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
44.5	12:54:13		44.5	44.5
51.5	12:54:14		51.5	51.5
50.4	12:54:15		50.4	50.4
46.9	12:54:16		46.9	46.9
45.1	12:54:17		45.1	45.1
43.6	12:54:18		43.6	43.6
45.7	12:54:19		45.7	45.7
48.9	12:54:20		48.9	48.9
47.0	12:54:21		47.0	47.0
45.1	12:54:22		45.1	45.1
42.9	12:54:23		42.9	42.9
42.0	12:54:24		42.0	42.0
43.5	12:54:25		43.5	43.5
44.5	12:54:26		44.5	44.5
44.2	12:54:27		44.2	44.2
44.9	12:54:28		44.9	44.9
47.7	12:54:29		47.7	47.7
49.8	12:54:30		49.8	49.8
50.6	12:54:31		50.6	50.6
49.9	12:54:32		49.9	49.9
48.1	12:54:33		48.1	48.1
47.7	12:54:34		47.7	47.7
46.0	12:54:35		46.0	46.0
44.4	12:54:36		44.4	44.4
43.8	12:54:37		43.8	43.8
44.1	12:54:38		44.1	44.1
43.7	12:54:39		43.7	43.7
45.1	12:54:40		45.1	45.1
45.7	12:54:41		45.7	45.7
44.1	12:54:42		44.1	44.1
43.4	12:54:43		43.4	43.4
43.1	12:54:44		43.1	43.1
42.9	12:54:45		42.9	42.9
50.1	12:54:46		50.1	50.1
50.9	12:54:47		50.9	50.9
48.0	12:54:48		48.0	48.0
46.9	12:54:49		46.9	46.9
47.2	12:54:50		47.2	47.2
45.5	12:54:51		45.5	45.5
44.2	12:54:52		44.2	44.2
43.7	12:54:53		43.7	43.7
54.7	12:54:54		54.7	54.7
58.3	12:54:55		58.3	58.3
57.7	12:54:56		57.7	57.7
56.6	12:54:57		56.6	56.6
56.4	12:54:58		56.4	56.4
56.1	12:54:59		56.1	56.1
55.7	12:55:00		55.7	55.7
55.1	12:55:01		55.1	55.1
57.1	12:55:02		57.1	57.1
60.6	12:55:03		60.6	60.6
65.7	12:55:04		65.7	65.7
71.0	12:55:05		71.0	71.0
78.0	12:55:06		78.0	78.0
80.6	12:55:07		80.6	80.6
79.5	12:55:08		79.5	79.5
76.4	12:55:09		76.4	76.4
72.8	12:55:10		72.8	72.8
68.9	12:55:11		68.9	68.9
65.3	12:55:12		65.3	65.3
63.8	12:55:13		63.8	63.8
70.2	12:55:14		70.2	70.2
71.9	12:55:15		71.9	71.9
68.9	12:55:16		68.9	68.9
65.1	12:55:17		65.1	65.1
61.4	12:55:18		61.4	61.4
57.7	12:55:19		57.7	57.7
54.1	12:55:20		54.1	54.1
51.0	12:55:21		51.0	51.0
48.3	12:55:22		48.3	48.3
46.8	12:55:23		46.8	46.8
45.5	12:55:24		45.5	45.5
46.2	12:55:25		46.2	46.2
45.3	12:55:26		45.3	45.3
44.8	12:55:27		44.8	44.8
49.3	12:55:28		49.3	49.3
50.0	12:55:29		50.0	50.0
47.7	12:55:30		47.7	47.7
45.8	12:55:31		45.8	45.8
44.6	12:55:32		44.6	44.6
43.8	12:55:33		43.8	43.8
44.2	12:55:34		44.2	44.2
46.1	12:55:35		46.1	46.1
52.1	12:55:36		52.1	52.1
55.4	12:55:37		55.4	55.4
56.3	12:55:38		56.3	56.3
53.6	12:55:39		53.6	53.6
50.5	12:55:40		50.5	50.5
50.6	12:55:41		50.6	50.6
48.3	12:55:42		48.3	48.3
45.9	12:55:43		45.9	45.9
44.2	12:55:44		44.2	44.2
43.1	12:55:45		43.1	43.1
43.0	12:55:46		43.0	43.0
44.8	12:55:47		44.8	44.8
47.6	12:55:48		47.6	47.6
55.6	12:55:49		55.6	55.6
53.1	12:55:50		53.1	53.1
49.3	12:55:51		49.3	49.3
46.5	12:55:52		46.5	46.5
45.3	12:55:53		45.3	45.3
45.0	12:55:54		45.0	45.0
46.2	12:55:55		46.2	46.2
50.4	12:55:56		50.4	50.4
52.5	12:55:57		52.5	52.5
54.3	12:55:58		54.3	54.3
51.3	12:55:59		51.3	51.3
48.7	12:56:00		48.7	48.7
48.8	12:56:01		48.8	48.8
50.6	12:56:02		50.6	50.6
48.5	12:56:03		48.5	48.5
47.3	12:56:04		47.3	47.3
48.2	12:56:05		48.2	48.2
46.7	12:56:06		46.7	46.7
47.0	12:56:07		47.0	47.0
53.3	12:56:08		53.3	53.3
52.3	12:56:09		52.3	52.3
49.1	12:56:10		49.1	49.1
46.8	12:56:11		46.8	46.8
45.5	12:56:12		45.5	45.5
43.8	12:56:13		43.8	43.8
42.8	12:56:14		42.8	42.8
44.0	12:56:15		44.0	44.0
49.4	12:56:16		49.4	49.4
49.4	12:56:17		49.4	49.4
53.5	12:56:18		53.5	53.5
53.1	12:56:19		53.1	53.1
49.8	12:56:20		49.8	49.8
47.2	12:56:21		47.2	47.2
45.3	12:56:22		45.3	45.3
50.4	12:56:23		50.4	50.4
54.6	12:56:24		54.6	54.6
57.1	12:56:25		57.1	57.1
53.4	12:56:26		53.4	53.4
49.8	12:56:27		49.8	49.8
49.3	12:56:28		49.3	49.3
50.3	12:56:29		50.3	50.3
49.1	12:56:30		49.1	49.1
45.9	12:56:31		45.9	45.9
43.9	12:56:32		43.9	43.9
42.7	12:56:33		42.7	42.7
45.0	12:56:34		45.0	45.0
44.9	12:56:35		44.9	44.9
46.5	12:56:36		46.5	46.5
47.3	12:56:37		47.3	47.3
46.7	12:56:38		46.7	46.7
48.4	12:56:39		48.4	48.4
48.4	12:56:40		48.4	48.4
52.3	12:56:41		52.3	52.3
53.7	12:56:42		53.7	53.7
51.2	12:56:43		51.2	51.2
48.1	12:56:44		48.1	48.1
47.1	12:56:45		47.1	47.1
51.8	12:56:46		51.8	51.8
51.9	12:56:47		51.9	51.9
48.9	12:56:48		48.9	48.9
50.0	12:56:49		50.0	50.0
50.2	12:56:50		50.2	50.2
49.5	12:56:51		49.5	49.5
48.4	12:56:52		48.4	48.4
46.0	12:56:53		46.0	46.0
47.9	12:56:54		47.9	47.9
50.5	12:56:55		50.5	50.5
51.4	12:56:56		51.4	51.4
50.3	12:56:57		50.3	50.3
48.3	12:56:58		48.3	48.3
45.8	12:56:59		45.8	45.8
45.8	12:57:00		45.8	45.8
48.3	12:57:01		48.3	48.3
48.1	12:57:02		48.1	48.1
46.2	12:57:03		46.2	46.2
45.4	12:57:04		45.4	45.4
45.8	12:57:05		45.8	45.8
46.7	12:57:06		46.7	46.7
48.7	12:57:07		48.7	48.7
51.4	12:57:08		51.4	51.4
53.8	12:57:09		53.8	53.8
53.9	12:57:10		53.9	53.9
53.1	12:57:11		53.1	53.1
52.0	12:57:12		52.0	52.0
53.1	12:57:13		53.1	53.1
50.8	12:57:14		50.8	50.8
49.6	12:57:15		49.6	49.6
49.4	12:57:16		49.4	49.4
49.0	12:57:17		49.0	49.0
47.7	12:57:18		47.7	47.7
48.6	12:57:19		48.6	48.6
51.7	12:57:20		51.7	51.7
50.4	12:57:21		50.4	50.4
47.4	12:57:22		47.4	47.4

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
52.1	13:08:36		52.1	52.1
52.9	13:08:37		52.9	52.9
53.3	13:08:38		53.3	53.3
53.1	13:08:39		53.1	53.1
52.9	13:08:40		52.9	52.9
51.8	13:08:41		51.8	51.8
51.6	13:08:42		51.6	51.6
56.6	13:08:43		56.6	56.6
56.3	13:08:44		56.3	56.3
54.2	13:08:45		54.2	54.2
52.9	13:08:46		52.9	52.9
52.8	13:08:47		52.8	52.8
52.3	13:08:48		52.3	52.3
52.2	13:08:49		52.2	52.2
52.8	13:08:50		52.8	52.8
52.4	13:08:51		52.4	52.4
52.2	13:08:52		52.2	52.2
52.9	13:08:53		52.9	52.9
54.6	13:08:54		54.6	54.6
57.2	13:08:55		57.2	57.2
64.9	13:08:56		64.9	64.9
70.5	13:08:57		70.5	70.5
68.1	13:08:58		68.1	68.1
64.7	13:08:59		64.7	64.7
61.1	13:09:00		61.1	61.1
57.8	13:09:01		57.8	57.8
55.1	13:09:02		55.1	55.1
53.2	13:09:03		53.2	53.2
53.5	13:09:04		53.5	53.5
54.2	13:09:05		54.2	54.2
53.8	13:09:06		53.8	53.8
53.4	13:09:07		53.4	53.4
52.5	13:09:08		52.5	52.5
51.5	13:09:09		51.5	51.5
51.5	13:09:10		51.5	51.5
52.0	13:09:11		52.0	52.0
53.1	13:09:12		53.1	53.1
52.7	13:09:13		52.7	52.7
51.9	13:09:14		51.9	51.9
51.1	13:09:15		51.1	51.1
51.3	13:09:16		51.3	51.3
52.9	13:09:17		52.9	52.9
52.8	13:09:18		52.8	52.8
52.6	13:09:19		52.6	52.6
52.6	13:09:20		52.6	52.6
51.2	13:09:21		51.2	51.2
51.6	13:09:22		51.6	51.6
53.1	13:09:23		53.1	53.1
53.8	13:09:24		53.8	53.8
52.0	13:09:25		52.0	52.0
51.7	13:09:26		51.7	51.7
52.3	13:09:27		52.3	52.3
53.3	13:09:28		53.3	53.3
53.1	13:09:29		53.1	53.1
52.1	13:09:30		52.1	52.1
51.0	13:09:31		51.0	51.0
51.5	13:09:32		51.5	51.5
51.1	13:09:33		51.1	51.1
51.9	13:09:34		51.9	51.9
52.5	13:09:35		52.5	52.5
51.4	13:09:36		51.4	51.4
50.7	13:09:37		50.7	50.7
51.5	13:09:38		51.5	51.5
52.9	13:09:39		52.9	52.9
52.9	13:09:40		52.9	52.9
51.7	13:09:41		51.7	51.7
51.9	13:09:42		51.9	51.9
52.9	13:09:43		52.9	52.9
51.9	13:09:44		51.9	51.9
51.0	13:09:45		51.0	51.0
49.4	13:09:46		49.4	49.4
50.8	13:09:47		50.8	50.8
51.8	13:09:48		51.8	51.8
50.6	13:09:49		50.6	50.6
49.9	13:09:50		49.9	49.9
49.3	13:09:51		49.3	49.3
51.2	13:09:52		51.2	51.2
51.5	13:09:53		51.5	51.5
50.9	13:09:54		50.9	50.9
50.1	13:09:55		50.1	50.1
49.8	13:09:56		49.8	49.8
51.5	13:09:57		51.5	51.5
52.7	13:09:58		52.7	52.7
52.6	13:09:59		52.6	52.6
52.0	13:10:00		52.0	52.0
51.3	13:10:01		51.3	51.3
50.9	13:10:02		50.9	50.9
52.2	13:10:03		52.2	52.2
51.9	13:10:04		51.9	51.9
51.0	13:10:05		51.0	51.0
50.0	13:10:06		50.0	50.0
49.9	13:10:07		49.9	49.9
50.6	13:10:08		50.6	50.6
51.5	13:10:09		51.5	51.5
51.4	13:10:10		51.4	51.4
50.4	13:10:11		50.4	50.4
52.1	13:10:12		52.1	52.1
52.1	13:10:13		52.1	52.1
52.2	13:10:14		52.2	52.2
52.0	13:10:15		52.0	52.0
52.9	13:10:16		52.9	52.9
53.1	13:10:17		53.1	53.1
53.8	13:10:18		53.8	53.8
56.9	13:10:19		56.9	56.9
58.9	13:10:20		58.9	58.9
60.6	13:10:21		60.6	60.6
63.5	13:10:22		63.5	63.5
67.9	13:10:23		67.9	67.9
71.7	13:10:24		71.7	71.7
74.6	13:10:25		74.6	74.6
74.6	13:10:26		74.6	74.6
71.8	13:10:27		71.8	71.8
68.1	13:10:28		68.1	68.1
64.5	13:10:29		64.5	64.5
61.1	13:10:30		61.1	61.1
58.0	13:10:31		58.0	58.0
55.2	13:10:32		55.2	55.2
53.1	13:10:33		53.1	53.1
51.4	13:10:34		51.4	51.4
51.9	13:10:35		51.9	51.9
51.2	13:10:36		51.2	51.2
50.9	13:10:37		50.9	50.9
50.5	13:10:38		50.5	50.5
51.5	13:10:39		51.5	51.5
52.9	13:10:40		52.9	52.9
52.2	13:10:41		52.2	52.2
53.7	13:10:42		53.7	53.7
56.2	13:10:43		56.2	56.2
57.3	13:10:44		57.3	57.3
54.5	13:10:45		54.5	54.5
53.0	13:10:46		53.0	53.0
51.6	13:10:47		51.6	51.6
51.7	13:10:48		51.7	51.7
53.0	13:10:49		53.0	53.0
52.3	13:10:50		52.3	52.3
53.4	13:10:51		53.4	53.4
54.5	13:10:52		54.5	54.5
53.0	13:10:53		53.0	53.0
51.2	13:10:54		51.2	51.2
50.1	13:10:55		50.1	50.1
51.1	13:10:56		51.1	51.1
50.8	13:10:57		50.8	50.8
52.5	13:10:58		52.5	52.5
51.8	13:10:59		51.8	51.8
51.7	13:11:00		51.7	51.7
50.9	13:11:01		50.9	50.9
50.4	13:11:02		50.4	50.4
50.7	13:11:03		50.7	50.7
51.3	13:11:04		51.3	51.3
51.9	13:11:05		51.9	51.9
51.0	13:11:06		51.0	51.0
51.6	13:11:07		51.6	51.6
52.4	13:11:08		52.4	52.4
51.3	13:11:09		51.3	51.3
51.0	13:11:10		51.0	51.0
51.1	13:11:11		51.1	51.1
49.4	13:11:12		49.4	49.4
49.4	13:11:13		49.4	49.4
50.6	13:11:14		50.6	50.6
52.4	13:11:15		52.4	52.4
51.8	13:11:16		51.8	51.8
52.7	13:11:17		52.7	52.7
51.9	13:11:18		51.9	51.9
50.5	13:11:19		50.5	50.5
50.3	13:11:20		50.3	50.3
51.4	13:11:21		51.4	51.4
51.0	13:11:22		51.0	51.0
52.1	13:11:23		52.1	52.1
52.2	13:11:24		52.2	52.2
52.2	13:11:25		52.2	52.2
51.1	13:11:26		51.1	51.1
50.1	13:11:27		50.1	50.1
50.7	13:11:28		50.7	50.7
50.5	13:11:29		50.5	50.5
50.6	13:11:30		50.6	50.6
50.2	13:11:31		50.2	50.2
50.5	13:11:32		50.5	50.5
50.8	13:11:33		50.8	50.8
51.7	13:11:34		51.7	51.7
50.9	13:11:35		50.9	50.9
50.8	13:11:36		50.8	50.8
51.7	13:11:37		51.7	51.7
52.7	13:11:38		52.7	52.7
53.2	13:11:39		53.2	53.2
54.3	13:11:40		54.3	54.3
56.4	13:11:41		56.4	56.4
61.1	13:11:42		61.1	61.1
69.6	13:11:43		69.6	69.6
79.6	13:11:44		79.6	79.6
80.5	13:11:45		80.5	80.5

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
43.2	13:15:07		43.2	43.2
44.5	13:15:08		44.5	44.5
47.8	13:15:09		47.8	47.8
50.3	13:15:10		50.3	50.3
49.1	13:15:11		49.1	49.1
48.9	13:15:12		48.9	48.9
48.0	13:15:13		48.0	48.0
47.7	13:15:14		47.7	47.7
47.0	13:15:15		47.0	47.0
44.9	13:15:16		44.9	44.9
45.1	13:15:17		45.1	45.1
42.1	13:15:18		42.1	42.1
39.9	13:15:19		39.9	39.9
40.4	13:15:20		40.4	40.4
39.7	13:15:21		39.7	39.7
40.2	13:15:22		40.2	40.2
38.6	13:15:23		38.6	38.6
39.5	13:15:24		39.5	39.5
41.3	13:15:25		41.3	41.3
43.1	13:15:26		43.1	43.1
41.7	13:15:27		41.7	41.7
42.6	13:15:28		42.6	42.6
43.6	13:15:29		43.6	43.6
45.2	13:15:30		45.2	45.2
46.8	13:15:31		46.8	46.8
47.7	13:15:32		47.7	47.7
51.1	13:15:33		51.1	51.1
50.0	13:15:34		50.0	50.0
46.6	13:15:35		46.6	46.6
43.2	13:15:36		43.2	43.2
40.9	13:15:37		40.9	40.9
40.4	13:15:38		40.4	40.4
41.1	13:15:39		41.1	41.1
40.7	13:15:40		40.7	40.7
40.9	13:15:41		40.9	40.9
39.9	13:15:42		39.9	39.9
39.0	13:15:43		39.0	39.0
38.6	13:15:44		38.6	38.6
38.4	13:15:45		38.4	38.4
40.2	13:15:46		40.2	40.2
42.0	13:15:47		42.0	42.0
43.4	13:15:48		43.4	43.4
43.5	13:15:49		43.5	43.5
42.7	13:15:50		42.7	42.7
44.1	13:15:51		44.1	44.1
45.0	13:15:52		45.0	45.0
45.6	13:15:53		45.6	45.6
45.1	13:15:54		45.1	45.1
43.3	13:15:55		43.3	43.3
42.1	13:15:56		42.1	42.1
41.4	13:15:57		41.4	41.4
43.4	13:15:58		43.4	43.4
43.0	13:15:59		43.0	43.0
42.5	13:16:00		42.5	42.5
44.6	13:16:01		44.6	44.6
42.2	13:16:02		42.2	42.2
42.1	13:16:03		42.1	42.1
42.1	13:16:04		42.1	42.1
41.0	13:16:05		41.0	41.0
40.0	13:16:06		40.0	40.0
39.3	13:16:07		39.3	39.3
40.4	13:16:08		40.4	40.4
42.0	13:16:09		42.0	42.0
43.6	13:16:10		43.6	43.6
44.1	13:16:11		44.1	44.1
41.4	13:16:12		41.4	41.4
40.0	13:16:13		40.0	40.0
39.8	13:16:14		39.8	39.8
40.2	13:16:15		40.2	40.2
40.6	13:16:16		40.6	40.6
39.5	13:16:17		39.5	39.5
38.6	13:16:18		38.6	38.6
38.4	13:16:19		38.4	38.4
38.4	13:16:20		38.4	38.4
37.9	13:16:21		37.9	37.9
37.9	13:16:22		37.9	37.9
37.7	13:16:23		37.7	37.7
37.5	13:16:24		37.5	37.5
37.2	13:16:25		37.2	37.2
38.7	13:16:26		38.7	38.7
38.4	13:16:27		38.4	38.4
37.6	13:16:28		37.6	37.6
37.3	13:16:29		37.3	37.3
37.7	13:16:30		37.7	37.7
38.5	13:16:31		38.5	38.5
39.8	13:16:32		39.8	39.8
39.5	13:16:33		39.5	39.5
39.1	13:16:34		39.1	39.1
39.5	13:16:35		39.5	39.5
40.3	13:16:36		40.3	40.3
41.4	13:16:37		41.4	41.4
41.4	13:16:38		41.4	41.4
44.3	13:16:39		44.3	44.3
45.5	13:16:40		45.5	45.5
46.5	13:16:41		46.5	46.5
45.8	13:16:42		45.8	45.8
44.6	13:16:43		44.6	44.6
46.4	13:16:44		46.4	46.4
44.4	13:16:45		44.4	44.4
41.7	13:16:46		41.7	41.7
39.5	13:16:47		39.5	39.5
38.4	13:16:48		38.4	38.4
39.1	13:16:49		39.1	39.1
39.0	13:16:50		39.0	39.0
38.2	13:16:51		38.2	38.2
38.6	13:16:52		38.6	38.6
38.7	13:16:53		38.7	38.7
38.3	13:16:54		38.3	38.3
40.4	13:16:55		40.4	40.4
42.6	13:16:56		42.6	42.6
46.1	13:16:57		46.1	46.1
48.5	13:16:58		48.5	48.5
49.2	13:16:59		49.2	49.2
50.3	13:17:00		50.3	50.3
52.4	13:17:01		52.4	52.4
52.3	13:17:02		52.3	52.3
52.3	13:17:03		52.3	52.3
50.0	13:17:04		50.0	50.0
46.0	13:17:05		46.0	46.0
44.5	13:17:06		44.5	44.5
44.7	13:17:07		44.7	44.7
46.7	13:17:08		46.7	46.7
47.5	13:17:09		47.5	47.5
48.6	13:17:10		48.6	48.6
49.3	13:17:11		49.3	49.3
48.9	13:17:12		48.9	48.9
51.1	13:17:13		51.1	51.1
52.3	13:17:14		52.3	52.3
50.5	13:17:15		50.5	50.5
48.1	13:17:16		48.1	48.1
46.0	13:17:17		46.0	46.0
47.0	13:17:18		47.0	47.0
47.2	13:17:19		47.2	47.2
45.1	13:17:20		45.1	45.1
43.5	13:17:21		43.5	43.5
48.1	13:17:22		48.1	48.1
49.1	13:17:23		49.1	49.1
49.4	13:17:24		49.4	49.4
50.0	13:17:25		50.0	50.0
48.6	13:17:26		48.6	48.6
48.8	13:17:27		48.8	48.8
48.9	13:17:28		48.9	48.9
47.6	13:17:29		47.6	47.6
47.2	13:17:30		47.2	47.2
46.5	13:17:31		46.5	46.5
49.0	13:17:32		49.0	49.0
49.4	13:17:33		49.4	49.4
51.7	13:17:34		51.7	51.7
51.8	13:17:35		51.8	51.8
51.3	13:17:36		51.3	51.3
51.1	13:17:37		51.1	51.1
50.8	13:17:38		50.8	50.8
48.5	13:17:39		48.5	48.5
47.9	13:17:40		47.9	47.9
47.7	13:17:41		47.7	47.7
48.5	13:17:42		48.5	48.5
50.7	13:17:43		50.7	50.7
51.0	13:17:44		51.0	51.0
50.6	13:17:45		50.6	50.6
49.9	13:17:46		49.9	49.9
48.9	13:17:47		48.9	48.9
46.0	13:17:48		46.0	46.0
42.9	13:17:49		42.9	42.9
41.3	13:17:50		41.3	41.3
41.4	13:17:51		41.4	41.4
42.0	13:17:52		42.0	42.0
45.0	13:17:53		45.0	45.0
50.1	13:17:54		50.1	50.1
52.5	13:17:55		52.5	52.5
53.7	13:17:56		53.7	53.7
53.2	13:17:57		53.2	53.2
49.9	13:17:58		49.9	49.9
50.1	13:17:59		50.1	50.1
50.2	13:18:00		50.2	50.2
49.5	13:18:01		49.5	49.5
48.6	13:18:02		48.6	48.6
49.8	13:18:03		49.8	49.8
50.6	13:18:04		50.6	50.6
51.8	13:18:05		51.8	51.8
51.9	13:18:06		51.9	51.9
54.8	13:18:07		54.8	54.8
52.2	13:18:08		52.2	52.2
48.2	13:18:09		48.2	48.2
44.4	13:18:10		44.4	44.4
41.4	13:18:11		41.4	41.4
39.2	13:18:12		39.2	39.2
38.5	13:18:13		38.5	38.5
40.3	13:18:14		40.3	40.3
44.5	13:18:15		44.5	44.5
44.5	13:18:16		44.5	44.5

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
47.4	12:57:23		47.4	47.4
45.7	12:57:24		45.7	45.7
44.9	12:57:25		44.9	44.9
46.3	12:57:26		46.3	46.3
54.0	12:57:27		54.0	54.0
56.5	12:57:28		56.5	56.5
60.6	12:57:29		60.6	60.6
58.2	12:57:30		58.2	58.2
54.3	12:57:31		54.3	54.3
50.5	12:57:32		50.5	50.5
47.5	12:57:33		47.5	47.5
45.8	12:57:34		45.8	45.8
44.5	12:57:35		44.5	44.5
53.5	12:57:36		53.5	53.5
57.8	12:57:37		57.8	57.8
55.5	12:57:38		55.5	55.5
55.2	12:57:39		55.2	55.2
52.7	12:57:40		52.7	52.7
50.2	12:57:41		50.2	50.2
47.2	12:57:42		47.2	47.2
44.4	12:57:43		44.4	44.4
47.9	12:57:44		47.9	47.9
48.0	12:57:45		48.0	48.0
51.5	12:57:46		51.5	51.5
52.1	12:57:47		52.1	52.1
48.5	12:57:48		48.5	48.5
46.3	12:57:49		46.3	46.3
46.0	12:57:50		46.0	46.0
46.8	12:57:51		46.8	46.8
49.7	12:57:52		49.7	49.7
53.3	12:57:53		53.3	53.3
56.1	12:57:54		56.1	56.1
56.7	12:57:55		56.7	56.7
53.8	12:57:56		53.8	53.8
50.4	12:57:57		50.4	50.4
46.7	12:57:58		46.7	46.7
47.4	12:57:59		47.4	47.4
52.9	12:58:00		52.9	52.9
50.3	12:58:01		50.3	50.3
47.4	12:58:02		47.4	47.4
44.7	12:58:03		44.7	44.7
44.7	12:58:04		44.7	44.7
47.3	12:58:05		47.3	47.3
51.5	12:58:06		51.5	51.5
52.7	12:58:07		52.7	52.7
52.0	12:58:08		52.0	52.0
54.3	12:58:09		54.3	54.3
50.8	12:58:10		50.8	50.8
47.8	12:58:11		47.8	47.8
47.5	12:58:12		47.5	47.5
53.7	12:58:13		53.7	53.7
52.8	12:58:14		52.8	52.8
49.3	12:58:15		49.3	49.3
52.3	12:58:16		52.3	52.3
54.3	12:58:17		54.3	54.3
50.6	12:58:18		50.6	50.6
47.8	12:58:19		47.8	47.8
54.3	12:58:20		54.3	54.3
54.2	12:58:21		54.2	54.2
53.4	12:58:22		53.4	53.4
51.6	12:58:23		51.6	51.6
50.2	12:58:24		50.2	50.2
50.9	12:58:25		50.9	50.9
52.5	12:58:26		52.5	52.5
56.2	12:58:27		56.2	56.2
58.2	12:58:28		58.2	58.2
62.0	12:58:29		62.0	62.0
66.9	12:58:30		66.9	66.9
73.3	12:58:31		73.3	73.3
76.5	12:58:32		76.5	76.5
74.2	12:58:33		74.2	74.2
70.4	12:58:34		70.4	70.4
66.5	12:58:35		66.5	66.5
63.0	12:58:36		63.0	63.0
59.4	12:58:37		59.4	59.4
56.1	12:58:38		56.1	56.1
53.1	12:58:39		53.1	53.1
51.8	12:58:40		51.8	51.8
50.5	12:58:41		50.5	50.5
49.8	12:58:42		49.8	49.8
52.3	12:58:43		52.3	52.3
56.7	12:58:44		56.7	56.7
54.9	12:58:45		54.9	54.9
55.4	12:58:46		55.4	55.4
53.1	12:58:47		53.1	53.1
49.7	12:58:48		49.7	49.7
46.8	12:58:49		46.8	46.8
46.6	12:58:50		46.6	46.6
45.9	12:58:51		45.9	45.9
45.6	12:58:52		45.6	45.6
46.5	12:58:53		46.5	46.5
46.3	12:58:54		46.3	46.3
44.2	12:58:55		44.2	44.2
42.1	12:58:56		42.1	42.1
42.3	12:58:57		42.3	42.3
42.1	12:58:58		42.1	42.1
43.3	12:58:59		43.3	43.3
46.6	12:59:00		46.6	46.6
49.9	12:59:01		49.9	49.9
48.3	12:59:02		48.3	48.3
48.3	12:59:03		48.3	48.3
52.4	12:59:04		52.4	52.4
54.4	12:59:05		54.4	54.4
50.8	12:59:06		50.8	50.8
47.1	12:59:07		47.1	47.1
44.3	12:59:08		44.3	44.3
43.0	12:59:09		43.0	43.0
44.3	12:59:10		44.3	44.3
44.2	12:59:11		44.2	44.2
47.3	12:59:12		47.3	47.3
51.3	12:59:13		51.3	51.3
49.4	12:59:14		49.4	49.4
47.4	12:59:15		47.4	47.4
46.4	12:59:16		46.4	46.4
46.4	12:59:17		46.4	46.4
49.4	12:59:18		49.4	49.4
51.8	12:59:19		51.8	51.8
52.0	12:59:20		52.0	52.0
48.5	12:59:21		48.5	48.5
45.4	12:59:22		45.4	45.4
43.5	12:59:23		43.5	43.5
43.3	12:59:24		43.3	43.3
45.9	12:59:25		45.9	45.9
48.3	12:59:26		48.3	48.3
58.0	12:59:27		58.0	58.0
58.4	12:59:28		58.4	58.4
55.1	12:59:29		55.1	55.1
55.0	12:59:30		55.0	55.0
61.8	12:59:31		61.8	61.8
69.4	12:59:32		69.4	69.4
77.0	12:59:33		77.0	77.0
78.3	12:59:34		78.3	78.3
74.8	12:59:35		74.8	74.8
70.9	12:59:36		70.9	70.9
66.9	12:59:37		66.9	66.9
63.1	12:59:38		63.1	63.1
60.1	12:59:39		60.1	60.1
59.7	12:59:40		59.7	59.7
62.1	12:59:41		62.1	62.1
60.8	12:59:42		60.8	60.8
56.9	12:59:43		56.9	56.9
53.1	12:59:44		53.1	53.1
53.1	12:59:45		53.1	53.1
55.9	12:59:46		55.9	55.9
53.4	12:59:47		53.4	53.4
49.9	12:59:48		49.9	49.9
53.6	12:59:49		53.6	53.6
60.9	12:59:50		60.9	60.9
58.8	12:59:51		58.8	58.8
55.6	12:59:52		55.6	55.6
52.0	12:59:53		52.0	52.0
49.1	12:59:54		49.1	49.1
48.3	12:59:55		48.3	48.3
48.5	12:59:56		48.5	48.5
51.9	12:59:57		51.9	51.9
53.6	12:59:58		53.6	53.6
57.2	12:59:59		57.2	57.2
57.1	13:00:00		57.1	57.1
56.1	13:00:01		56.1	56.1
54.4	13:00:02		54.4	54.4
51.9	13:00:03		51.9	51.9
59.9	13:00:04		59.9	59.9
58.8	13:00:05		58.8	58.8
54.8	13:00:06		54.8	54.8
51.8	13:00:07		51.8	51.8
50.6	13:00:08		50.6	50.6
50.6	13:00:09		50.6	50.6
47.3	13:00:10		47.3	47.3
44.6	13:00:11		44.6	44.6
43.5	13:00:12		43.5	43.5
45.1	13:00:13		45.1	45.1
49.9	13:00:14		49.9	49.9
51.1	13:00:15		51.1	51.1
48.9	13:00:16		48.9	48.9
48.1	13:00:17		48.1	48.1
46.4	13:00:18		46.4	46.4
50.6	13:00:19		50.6	50.6
53.8	13:00:20		53.8	53.8
56.2	13:00:21		56.2	56.2
56.4	13:00:22		56.4	56.4
52.6	13:00:23		52.6	52.6
49.1	13:00:24		49.1	49.1
46.4	13:00:25		46.4	46.4
50.0	13:00:26		50.0	50.0
58.1	13:00:27		58.1	58.1
58.8	13:00:28		58.8	58.8
56.2	13:00:29		56.2	56.2
52.2	13:00:30		52.2	52.2
49.4	13:00:31		49.4	49.4
48.5	13:00:32		48.5	48.5
46.1	13:00:33		46.1	46.1
47.1	13:00:34		47.1	47.1
52.2	13:00:35		52.2	52.2
51.2	13:00:36		51.2	51.2
48.9	13:00:37		48.9	48.9
47.8	13:00:38		47.8	47.8
46.0	13:00:39		46.0	46.0
46.3	13:00:40		46.3	46.3
47.6	13:00:41		47.6	47.6
49.2	13:00:42		49.2	49.2
53.6	13:00:43		53.6	53.6
61.7	13:00:44		61.7	61.7
66.5	13:00:45		66.5	66.5
71.8	13:00:46		71.8	71.8
76.0	13:00:47		76.0	76.0
74.2	13:00:48		74.2	74.2
70.3	13:00:49		70.3	70.3
66.3	13:00:50		66.3	66.3
62.4	13:00:51		62.4	62.4
59.2	13:00:52		59.2	59.2
55.4	13:00:53		55.4	55.4
51.8	13:00:54		51.8	51.8
48.4	13:00:55		48.4	48.4

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
77.6	13:11:46		77.6	77.6
74.1	13:11:47		74.1	74.1
70.2	13:11:48		70.2	70.2
66.4	13:11:49		66.4	66.4
62.9	13:11:50		62.9	62.9
60.4	13:11:51		60.4	60.4
58.2	13:11:52		58.2	58.2
55.7	13:11:53		55.7	55.7
54.2	13:11:54		54.2	54.2
54.6	13:11:55		54.6	54.6
54.8	13:11:56		54.8	54.8
53.3	13:11:57		53.3	53.3
53.4	13:11:58		53.4	53.4
55.7	13:11:59		55.7	55.7
55.2	13:12:00		55.2	55.2
54.8	13:12:01		54.8	54.8
53.8	13:12:02		53.8	53.8
53.0	13:12:03		53.0	53.0
52.0	13:12:04		52.0	52.0
52.6	13:12:05		52.6	52.6
52.6	13:12:06		52.6	52.6
52.9	13:12:07		52.9	52.9
52.7	13:12:08		52.7	52.7
52.7	13:12:09		52.7	52.7
52.8	13:12:10		52.8	52.8
53.0	13:12:11		53.0	53.0
51.8	13:12:12		51.8	51.8
52.1	13:12:13		52.1	52.1
51.7	13:12:14		51.7	51.7
52.0	13:12:15		52.0	52.0
53.7	13:12:16		53.7	53.7
53.9	13:12:17		53.9	53.9
52.8	13:12:18		52.8	52.8
52.0	13:12:19		52.0	52.0
52.0	13:12:20		52.0	52.0
51.2	13:12:21		51.2	51.2
50.4	13:12:22		50.4	50.4
49.4	13:12:23		49.4	49.4
50.3	13:12:24		50.3	50.3
51.1	13:12:25		51.1	51.1
53.0	13:12:26		53.0	53.0
52.8	13:12:27		52.8	52.8
51.9	13:12:28		51.9	51.9
51.4	13:12:29		51.4	51.4
51.1	13:12:30		51.1	51.1
51.3	13:12:31		51.3	51.3
50.7	13:12:32		50.7	50.7
51.3	13:12:33		51.3	51.3
52.0	13:12:34		52.0	52.0
51.4	13:12:35		51.4	51.4
50.3	13:12:36		50.3	50.3
51.8	13:12:37		51.8	51.8
52.6	13:12:38		52.6	52.6
51.8	13:12:39		51.8	51.8
51.8	13:12:40		51.8	51.8
51.9	13:12:41		51.9	51.9
51.1	13:12:42		51.1	51.1
49.8	13:12:43		49.8	49.8
49.8	13:12:44		49.8	49.8
51.1	13:12:45		51.1	51.1
51.6	13:12:46		51.6	51.6
52.6	13:12:47		52.6	52.6
52.0	13:12:48		52.0	52.0
51.2	13:12:49		51.2	51.2
51.3	13:12:50		51.3	51.3
52.6	13:12:51		52.6	52.6
52.0	13:12:52		52.0	52.0
51.5	13:12:53		51.5	51.5
50.5	13:12:54		50.5	50.5
50.2	13:12:55		50.2	50.2
50.9	13:12:56		50.9	50.9
51.5	13:12:57		51.5	51.5
51.9	13:12:58		51.9	51.9
50.8	13:12:59		50.8	50.8
50.0	13:13:00		50.0	50.0
50.7	13:13:01		50.7	50.7
51.7	13:13:02		51.7	51.7
51.4	13:13:03		51.4	51.4
51.4	13:13:04		51.4	51.4
50.5	13:13:05		50.5	50.5
50.5	13:13:06		50.5	50.5
50.1	13:13:07		50.1	50.1
50.3	13:13:08		50.3	50.3
49.1	13:13:09		49.1	49.1
48.6	13:13:10		48.6	48.6
50.8	13:13:11		50.8	50.8
51.1	13:13:12		51.1	51.1
50.8	13:13:13		50.8	50.8
51.3	13:13:14		51.3	51.3
51.5	13:13:15		51.5	51.5
52.6	13:13:16		52.6	52.6
51.9	13:13:17		51.9	51.9
50.8	13:13:18		50.8	50.8
50.4	13:13:19		50.4	50.4
49.7	13:13:20		49.7	49.7
49.8	13:13:21		49.8	49.8
50.1	13:13:22		50.1	50.1
51.0	13:13:23		51.0	51.0
51.3	13:13:24		51.3	51.3
51.8	13:13:25		51.8	51.8
53.1	13:13:26		53.1	53.1
55.4	13:13:27		55.4	55.4
58.0	13:13:28		58.0	58.0
63.5	13:13:29		63.5	63.5
68.0	13:13:30		68.0	68.0
70.1	13:13:31		70.1	70.1
68.4	13:13:32		68.4	68.4
64.9	13:13:33		64.9	64.9
61.2	13:13:34		61.2	61.2
57.9	13:13:35		57.9	57.9
55.5	13:13:36		55.5	55.5
54.5	13:13:37		54.5	54.5
53.8	13:13:38		53.8	53.8
54.5	13:13:39		54.5	54.5
56.0	13:13:40		56.0	56.0
59.6	13:13:41		59.6	59.6
69.6	13:13:42		69.6	69.6
73.3	13:13:43		73.3	73.3
71.8	13:13:44		71.8	71.8
68.4	13:13:45		68.4	68.4
64.9	13:13:46		64.9	64.9
61.5	13:13:47		61.5	61.5
58.3	13:13:48		58.3	58.3
55.6	13:13:49		55.6	55.6
54.4	13:13:50		54.4	54.4
52.9	13:13:51		52.9	52.9
51.9	13:13:52		51.9	51.9
51.6	13:13:53		51.6	51.6
50.9	13:13:54		50.9	50.9
51.3	13:13:55		51.3	51.3
51.1	13:13:56		51.1	51.1
50.8	13:13:57		50.8	50.8
51.3	13:13:58		51.3	51.3
50.3	13:13:59		50.3	50.3
50.6	13:14:00		50.6	50.6
55.0	13:14:01		55.0	55.0
54.7	13:14:02		54.7	54.7
52.8	13:14:03		52.8	52.8
50.9	13:14:04		50.9	50.9
50.4	13:14:05		50.4	50.4
51.4	13:14:06		51.4	51.4
51.7	13:14:07		51.7	51.7
52.6	13:14:08		52.6	52.6
53.6	13:14:09		53.6	53.6
55.7	13:14:10		55.7	55.7
60.4	13:14:11		60.4	60.4
69.8	13:14:12		69.8	69.8
73.9	13:14:13		73.9	73.9
72.0	13:14:14		72.0	72.0
68.5	13:14:15		68.5	68.5
64.8	13:14:16		64.8	64.8
61.4	13:14:17		61.4	61.4
58.6	13:14:18		58.6	58.6
56.4	13:14:19		56.4	56.4
54.7	13:14:20		54.7	54.7
54.0	13:14:21		54.0	54.0
53.1	13:14:22		53.1	53.1
52.7	13:14:23		52.7	52.7
52.6	13:14:24		52.6	52.6
52.1	13:14:25		52.1	52.1
51.6	13:14:26		51.6	51.6
50.8	13:14:27		50.8	50.8
51.2	13:14:28		51.2	51.2
51.7	13:14:29		51.7	51.7
51.1	13:14:30		51.1	51.1
50.9	13:14:31		50.9	50.9
50.6	13:14:32		50.6	50.6
52.0	13:14:33		52.0	52.0
52.1	13:14:34		52.1	52.1
51.5	13:14:35		51.5	51.5
50.8	13:14:36		50.8	50.8
50.5	13:14:37		50.5	50.5
50.8	13:14:38		50.8	50.8
51.3	13:14:39		51.3	51.3
51.7	13:14:40		51.7	51.7
50.7	13:14:41		50.7	50.7
51.0	13:14:42		51.0	51.0
51.8	13:14:43		51.8	51.8
50.4	13:14:44		50.4	50.4
50.5	13:14:45		50.5	50.5
50.1	13:14:46		50.1	50.1
51.8	13:14:47		51.8	51.8
51.5	13:14:48		51.5	51.5
52.4	13:14:49		52.4	52.4
52.5	13:14:50		52.5	52.5
51.3	13:14:51		51.3	51.3
51.3	13:14:52		51.3	51.3
51.9	13:14:53		51.9	51.9
51.2	13:14:54		51.2	51.2
50.3	13:14:55		50.3	50.3
50.1	13:14:56		50.1	50.1
50.8	13:14:57		50.8	50.8
51.1	13:14:58		51.1	51.1
55.2	13:14:59		55.2	55.2
55.3	13:15:00		55.3	55.3
53.1	13:15:01		53.1	53.1
52.9	13:15:02		52.9	52.9
53.7	13:15:03		53.7	53.7
52.1	13:15:04		52.1	52.1
50.7	13:15:05		50.7	50.7
49.6	13:15:06		49.6	49.6
50.1	13:15:07		50.1	50.1
51.1	13:15:08		51.1	51.1
51.4	13:15:09		51.4	51.4
50.4	13:15:10		50.4	50.4
51.2	13:15:11		51.2	51.2
52.5	13:15:12		52.5	52.5
52.9	13:15:13		52.9	52.9
51.7	13:15:14		51.7	51.7
49.6	13:15:15		49.6	49.6
49.6	13:15:16		49.6	49.6
50.5	13:15:17		50.5	50.5
50.8	13:15:18		50.8	50.8

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
45.7	13:18:17		45.7	45.7
45.0	13:18:18		45.0	45.0
46.9	13:18:19		46.9	46.9
44.2	13:18:20		44.2	44.2
41.3	13:18:21		41.3	41.3
39.4	13:18:22		39.4	39.4
41.0	13:18:23		41.0	41.0
45.2	13:18:24		45.2	45.2
47.9	13:18:25		47.9	47.9
44.5	13:18:26		44.5	44.5
42.2	13:18:27		42.2	42.2
43.8	13:18:28		43.8	43.8
44.8	13:18:29		44.8	44.8
43.0	13:18:30		43.0	43.0
40.7	13:18:31		40.7	40.7
38.8	13:18:32		38.8	38.8
37.8	13:18:33		37.8	37.8
39.7	13:18:34		39.7	39.7
41.3	13:18:35		41.3	41.3
41.0	13:18:36		41.0	41.0
42.1	13:18:37		42.1	42.1
43.5	13:18:38		43.5	43.5
43.3	13:18:39		43.3	43.3
40.9	13:18:40		40.9	40.9
42.3	13:18:41		42.3	42.3
44.3	13:18:42		44.3	44.3
45.1	13:18:43		45.1	45.1
45.7	13:18:44		45.7	45.7
47.7	13:18:45		47.7	47.7
45.9	13:18:46		45.9	45.9
44.9	13:18:47		44.9	44.9
42.5	13:18:48		42.5	42.5
46.3	13:18:49		46.3	46.3
45.1	13:18:50		45.1	45.1
43.7	13:18:51		43.7	43.7
44.9	13:18:52		44.9	44.9
43.4	13:18:53		43.4	43.4
40.8	13:18:54		40.8	40.8
39.8	13:18:55		39.8	39.8
44.4	13:18:56		44.4	44.4
48.7	13:18:57		48.7	48.7
50.8	13:18:58		50.8	50.8
53.7	13:18:59		53.7	53.7
53.1	13:19:00		53.1	53.1
52.6	13:19:01		52.6	52.6
50.2	13:19:02		50.2	50.2
49.6	13:19:03		49.6	49.6
48.0	13:19:04		48.0	48.0
47.2	13:19:05		47.2	47.2
48.6	13:19:06		48.6	48.6
49.5	13:19:07		49.5	49.5
50.7	13:19:08		50.7	50.7
51.1	13:19:09		51.1	51.1
49.1	13:19:10		49.1	49.1
51.4	13:19:11		51.4	51.4
52.0	13:19:12		52.0	52.0
52.1	13:19:13		52.1	52.1
51.5	13:19:14		51.5	51.5
48.0	13:19:15		48.0	48.0
44.9	13:19:16		44.9	44.9
45.8	13:19:17		45.8	45.8
43.4	13:19:18		43.4	43.4
42.0	13:19:19		42.0	42.0
41.3	13:19:20		41.3	41.3
41.0	13:19:21		41.0	41.0
39.9	13:19:22		39.9	39.9
39.6	13:19:23		39.6	39.6
39.3	13:19:24		39.3	39.3
39.0	13:19:25		39.0	39.0
40.1	13:19:26		40.1	40.1
43.7	13:19:27		43.7	43.7
48.0	13:19:28		48.0	48.0
51.5	13:19:29		51.5	51.5
49.8	13:19:30		49.8	49.8
47.6	13:19:31		47.6	47.6
47.6	13:19:32		47.6	47.6
46.7	13:19:33		46.7	46.7
45.1	13:19:34		45.1	45.1
43.1	13:19:35		43.1	43.1
40.8	13:19:36		40.8	40.8
40.8	13:19:37		40.8	40.8
40.9	13:19:38		40.9	40.9
41.4	13:19:39		41.4	41.4
48.0	13:19:40		48.0	48.0
48.8	13:19:41		48.8	48.8
50.2	13:19:42		50.2	50.2
51.2	13:19:43		51.2	51.2
50.6	13:19:44		50.6	50.6
48.1	13:19:45		48.1	48.1
45.3	13:19:46		45.3	45.3
42.9	13:19:47		42.9	42.9
41.8	13:19:48		41.8	41.8
43.1	13:19:49		43.1	43.1
43.7	13:19:50		43.7	43.7
42.4	13:19:51		42.4	42.4
42.3	13:19:52		42.3	42.3
41.2	13:19:53		41.2	41.2
41.8	13:19:54		41.8	41.8
41.3	13:19:55		41.3	41.3
40.6	13:19:56		40.6	40.6
40.2	13:19:57		40.2	40.2
40.4	13:19:58		40.4	40.4
40.6	13:19:59		40.6	40.6
39.5	13:20:00		39.5	39.5
39.3	13:20:01		39.3	39.3
45.8	13:20:02		45.8	45.8
47.9	13:20:03		47.9	47.9
45.4	13:20:04		45.4	45.4
43.4	13:20:05		43.4	43.4
42.9	13:20:06		42.9	42.9
43.6	13:20:07		43.6	43.6
44.0	13:20:08		44.0	44.0
44.1	13:20:09		44.1	44.1
42.9	13:20:10		42.9	42.9
41.9	13:20:11		41.9	41.9
41.4	13:20:12		41.4	41.4
40.7	13:20:13		40.7	40.7
42.2	13:20:14		42.2	42.2
41.2	13:20:15		41.2	41.2
40.7	13:20:16		40.7	40.7
39.2	13:20:17		39.2	39.2
38.1	13:20:18		38.1	38.1
40.0	13:20:19		40.0	40.0
39.6	13:20:20		39.6	39.6
38.8	13:20:21		38.8	38.8
38.2	13:20:22		38.2	38.2
38.5	13:20:23		38.5	38.5
38.8	13:20:24		38.8	38.8
37.7	13:20:25		37.7	37.7
36.8	13:20:26		36.8	36.8
38.6	13:20:27		38.6	38.6
39.3	13:20:28		39.3	39.3
38.8	13:20:29		38.8	38.8
38.4	13:20:30		38.4	38.4
37.9	13:20:31		37.9	37.9
37.6	13:20:32		37.6	37.6
38.2	13:20:33		38.2	38.2
38.1	13:20:34		38.1	38.1
38.6	13:20:35		38.6	38.6
39.6	13:20:36		39.6	39.6
39.4	13:20:37		39.4	39.4
39.8	13:20:38		39.8	39.8
40.6	13:20:39		40.6	40.6
40.3	13:20:40		40.3	40.3
40.4	13:20:41		40.4	40.4
39.8	13:20:42		39.8	39.8
39.5	13:20:43		39.5	39.5
40.2	13:20:44		40.2	40.2
41.2	13:20:45		41.2	41.2
41.7	13:20:46		41.7	41.7
41.3	13:20:47		41.3	41.3
39.8	13:20:48		39.8	39.8
40.6	13:20:49		40.6	40.6
41.2	13:20:50		41.2	41.2
41.7	13:20:51		41.7	41.7
42.0	13:20:52		42.0	42.0
41.1	13:20:53		41.1	41.1
40.9	13:20:54		40.9	40.9
41.1	13:20:55		41.1	41.1
41.2	13:20:56		41.2	41.2
42.2	13:20:57		42.2	42.2
42.6	13:20:58		42.6	42.6
43.8	13:20:59		43.8	43.8
42.8	13:21:00		42.8	42.8
41.8	13:21:01		41.8	41.8
41.5	13:21:02		41.5	41.5
41.8	13:21:03		41.8	41.8
40.7	13:21:04		40.7	40.7
39.9	13:21:05		39.9	39.9
40.1	13:21:06		40.1	40.1
40.2	13:21:07		40.2	40.2
41.3	13:21:08		41.3	41.3
40.6	13:21:09		40.6	40.6
40.1	13:21:10		40.1	40.1
41.5	13:21:11		41.5	41.5
42.8	13:21:12		42.8	42.8
41.8	13:21:13		41.8	41.8
41.0	13:21:14		41.0	41.0
41.4	13:21:15		41.4	41.4
41.9	13:21:16		41.9	41.9
40.9	13:21:17		40.9	40.9
40.1	13:21:18		40.1	40.1
41.1	13:21:19		41.1	41.1
42.2	13:21:20		42.2	42.2
42.0	13:21:21		42.0	42.0
41.6	13:21:22		41.6	41.6
42.3	13:21:23		42.3	42.3
41.6	13:21:24		41.6	41.6
42.6	13:21:25		42.6	42.6
44.0	13:21:26		44.0	44.0
44.8	13:21:27		44.8	44.8
43.5	13:21:28		43.5	43.5
42.4	13:21:29		42.4	42.4
41.7	13:21:30		41.7	41.7
41.7	13:21:31		41.7	41.7
41.8	13:21:32		41.8	41.8
41.5	13:21:33		41.5	41.5
42.1	13:21:34		42.1	42.1
43.4	13:21:35		43.4	43.4
43.5	13:21:36		43.5	43.5
42.9	13:21:37		42.9	42.9
42.3	13:21:38		42.3	42.3
42.1	13:21:39		42.1	42.1
41.6	13:21:40		41.6	41.6
41.1	13:21:41		41.1	41.1
42.3	13:21:42		42.3	42.3
42.1	13:21:43		42.1	42.1
41.3	13:21:44		41.3	41.3
41.3	13:21:45		41.3	41.3
41.8	13:21:46		41.8	41.8
42.3	13:21:47		42.3	42.3
41.4	13:21:48		41.4	41.4
41.5	13:21:49		41.5	41.5

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
45.5	13:00:56		45.5	45.5
44.3	13:00:57		44.3	44.3
44.4	13:00:58		44.4	44.4
53.4	13:00:59		53.4	53.4
52.2	13:01:00		52.2	52.2
49.4	13:01:01		49.4	49.4
46.4	13:01:02		46.4	46.4
46.9	13:01:03		46.9	46.9
46.1	13:01:04		46.1	46.1
45.7	13:01:05		45.7	45.7
49.8	13:01:06		49.8	49.8
52.4	13:01:07		52.4	52.4
49.9	13:01:08		49.9	49.9
46.5	13:01:09		46.5	46.5
53.3	13:01:10		53.3	53.3
50.0	13:01:11		50.0	50.0
58.2	13:01:12		58.2	58.2
57.2	13:01:13		57.2	57.2
57.2	13:01:14		57.2	57.2
55.5	13:01:15		55.5	55.5
51.5	13:01:16		51.5	51.5
47.7	13:01:17		47.7	47.7
45.5	13:01:18		45.5	45.5
44.8	13:01:19		44.8	44.8
43.0	13:01:20		43.0	43.0
41.9	13:01:21		41.9	41.9
42.1	13:01:22		42.1	42.1
41.9	13:01:23		41.9	41.9
41.5	13:01:24		41.5	41.5
40.5	13:01:25		40.5	40.5
45.7	13:01:26		45.7	45.7
53.9	13:01:27		53.9	53.9
50.5	13:01:28		50.5	50.5
47.8	13:01:29		47.8	47.8
45.2	13:01:30		45.2	45.2
44.3	13:01:31		44.3	44.3
43.8	13:01:32		43.8	43.8
43.4	13:01:33		43.4	43.4
44.2	13:01:34		44.2	44.2
46.3	13:01:35		46.3	46.3
46.8	13:01:36		46.8	46.8
50.7	13:01:37		50.7	50.7
55.2	13:01:38		55.2	55.2
54.2	13:01:39		54.2	54.2
54.7	13:01:40		54.7	54.7
56.4	13:01:41		56.4	56.4
55.7	13:01:42		55.7	55.7
52.8	13:01:43		52.8	52.8
52.4	13:01:44		52.4	52.4
54.5	13:01:45		54.5	54.5
54.1	13:01:46		54.1	54.1
52.7	13:01:47		52.7	52.7
52.1	13:01:48		52.1	52.1
51.0	13:01:49		51.0	51.0
51.1	13:01:50		51.1	51.1
55.7	13:01:51		55.7	55.7
56.8	13:01:52		56.8	56.8
58.8	13:01:53		58.8	58.8
62.0	13:01:54		62.0	62.0
63.8	13:01:55		63.8	63.8
67.4	13:01:56		67.4	67.4
70.3	13:01:57		70.3	70.3
68.1	13:01:58		68.1	68.1
64.5	13:01:59		64.5	64.5
61.0	13:02:00		61.0	61.0
58.5	13:02:01		58.5	58.5
55.9	13:02:02		55.9	55.9
52.5	13:02:03		52.5	52.5
49.3	13:02:04		49.3	49.3
46.8	13:02:05		46.8	46.8
45.1	13:02:06		45.1	45.1
44.9	13:02:07		44.9	44.9
54.8	13:02:08		54.8	54.8
52.1	13:02:09		52.1	52.1
51.7	13:02:10		51.7	51.7
48.7	13:02:11		48.7	48.7
46.3	13:02:12		46.3	46.3
49.7	13:02:13		49.7	49.7
55.9	13:02:14		55.9	55.9
53.9	13:02:15		53.9	53.9
51.2	13:02:16		51.2	51.2
50.6	13:02:17		50.6	50.6
49.8	13:02:18		49.8	49.8
50.0	13:02:19		50.0	50.0
47.5	13:02:20		47.5	47.5
46.3	13:02:21		46.3	46.3
44.5	13:02:22		44.5	44.5
43.5	13:02:23		43.5	43.5
43.2	13:02:24		43.2	43.2
43.1	13:02:25		43.1	43.1
42.2	13:02:26		42.2	42.2
42.4	13:02:27		42.4	42.4
42.0	13:02:28		42.0	42.0
41.7	13:02:29		41.7	41.7
42.0	13:02:30		42.0	42.0
43.4	13:02:31		43.4	43.4
48.2	13:02:32		48.2	48.2
49.9	13:02:33		49.9	49.9
47.8	13:02:34		47.8	47.8
45.4	13:02:35		45.4	45.4
46.2	13:02:36		46.2	46.2
45.3	13:02:37		45.3	45.3
43.7	13:02:38		43.7	43.7
42.7	13:02:39		42.7	42.7
42.5	13:02:40		42.5	42.5
42.5	13:02:41		42.5	42.5
42.8	13:02:42		42.8	42.8
44.7	13:02:43		44.7	44.7
46.0	13:02:44		46.0	46.0
43.9	13:02:45		43.9	43.9
43.7	13:02:46		43.7	43.7
46.8	13:02:47		46.8	46.8
44.9	13:02:48		44.9	44.9
43.3	13:02:49		43.3	43.3
44.9	13:02:50		44.9	44.9
44.4	13:02:51		44.4	44.4
43.3	13:02:52		43.3	43.3
43.9	13:02:53		43.9	43.9
48.5	13:02:54		48.5	48.5
50.7	13:02:55		50.7	50.7
51.0	13:02:56		51.0	51.0
50.5	13:02:57		50.5	50.5
48.4	13:02:58		48.4	48.4
47.0	13:02:59		47.0	47.0
47.3	13:03:00		47.3	47.3
46.4	13:03:01		46.4	46.4
44.7	13:03:02		44.7	44.7
43.9	13:03:03		43.9	43.9
43.4	13:03:04		43.4	43.4
44.2	13:03:05		44.2	44.2
47.7	13:03:06		47.7	47.7
47.3	13:03:07		47.3	47.3
49.1	13:03:08		49.1	49.1
52.3	13:03:09		52.3	52.3
52.4	13:03:10		52.4	52.4
49.3	13:03:11		49.3	49.3
46.4	13:03:12		46.4	46.4
44.5	13:03:13		44.5	44.5
45.0	13:03:14		45.0	45.0
45.3	13:03:15		45.3	45.3
44.5	13:03:16		44.5	44.5
44.3	13:03:17		44.3	44.3
43.0	13:03:18		43.0	43.0
42.1	13:03:19		42.1	42.1
41.2	13:03:20		41.2	41.2
42.2	13:03:21		42.2	42.2
42.5	13:03:22		42.5	42.5
43.1	13:03:23		43.1	43.1
45.0	13:03:24		45.0	45.0
43.8	13:03:25		43.8	43.8
47.4	13:03:26		47.4	47.4
50.7	13:03:27		50.7	50.7
50.0	13:03:28		50.0	50.0
46.8	13:03:29		46.8	46.8
45.4	13:03:30		45.4	45.4
45.0	13:03:31		45.0	45.0
44.7	13:03:32		44.7	44.7
46.4	13:03:33		46.4	46.4
52.4	13:03:34		52.4	52.4
54.2	13:03:35		54.2	54.2
50.9	13:03:36		50.9	50.9
48.2	13:03:37		48.2	48.2
46.7	13:03:38		46.7	46.7
45.9	13:03:39		45.9	45.9
46.1	13:03:40		46.1	46.1
47.3	13:03:41		47.3	47.3
48.7	13:03:42		48.7	48.7
46.9	13:03:43		46.9	46.9
46.0	13:03:44		46.0	46.0
44.9	13:03:45		44.9	44.9
44.8	13:03:46		44.8	44.8
49.2	13:03:47		49.2	49.2
50.1	13:03:48		50.1	50.1
49.0	13:03:49		49.0	49.0

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
51.4	13:15:19		51.4	51.4
51.3	13:15:20		51.3	51.3
50.9	13:15:21		50.9	50.9
51.1	13:15:22		51.1	51.1
52.5	13:15:23		52.5	52.5
51.9	13:15:24		51.9	51.9
52.4	13:15:25		52.4	52.4
53.1	13:15:26		53.1	53.1
55.4	13:15:27		55.4	55.4
57.9	13:15:28		57.9	57.9
64.3	13:15:29		64.3	64.3
75.5	13:15:30		75.5	75.5
76.5	13:15:31		76.5	76.5
73.1	13:15:32		73.1	73.1
70.3	13:15:33		70.3	70.3
67.2	13:15:34		67.2	67.2
64.2	13:15:35		64.2	64.2
62.0	13:15:36		62.0	62.0
60.6	13:15:37		60.6	60.6
71.3	13:15:38		71.3	71.3
70.5	13:15:39		70.5	70.5
67.5	13:15:40		67.5	67.5
64.2	13:15:41		64.2	64.2
61.1	13:15:42		61.1	61.1
58.0	13:15:43		58.0	58.0
55.9	13:15:44		55.9	55.9
55.2	13:15:45		55.2	55.2
55.0	13:15:46		55.0	55.0
55.3	13:15:47		55.3	55.3
54.5	13:15:48		54.5	54.5
54.0	13:15:49		54.0	54.0
55.7	13:15:50		55.7	55.7
58.9	13:15:51		58.9	58.9
68.2	13:15:52		68.2	68.2
73.7	13:15:53		73.7	73.7
72.3	13:15:54		72.3	72.3
69.1	13:15:55		69.1	69.1
65.8	13:15:56		65.8	65.8
62.5	13:15:57		62.5	62.5
59.3	13:15:58		59.3	59.3
56.6	13:15:59		56.6	56.6
55.1	13:16:00		55.1	55.1
55.9	13:16:01		55.9	55.9
57.0	13:16:02		57.0	57.0
55.5	13:16:03		55.5	55.5
53.0	13:16:04		53.0	53.0
51.3	13:16:05		51.3	51.3
51.3	13:16:06		51.3	51.3
51.3	13:16:07		51.3	51.3
50.9	13:16:08		50.9	50.9
51.2	13:16:09		51.2	51.2
51.4	13:16:10		51.4	51.4
51.5	13:16:11		51.5	51.5
51.8	13:16:12		51.8	51.8
52.7	13:16:13		52.7	52.7
52.1	13:16:14		52.1	52.1
51.2	13:16:15		51.2	51.2
49.8	13:16:16		49.8	49.8
50.8	13:16:17		50.8	50.8
51.8	13:16:18		51.8	51.8
52.2	13:16:19		52.2	52.2
52.4	13:16:20		52.4	52.4
52.7	13:16:21		52.7	52.7
54.0	13:16:22		54.0	54.0
53.9	13:16:23		53.9	53.9
55.7	13:16:24		55.7	55.7
59.8	13:16:25		59.8	59.8
67.6	13:16:26		67.6	67.6
71.0	13:16:27		71.0	71.0
72.6	13:16:28		72.6	72.6
70.9	13:16:29		70.9	70.9
67.6	13:16:30		67.6	67.6
64.2	13:16:31		64.2	64.2
60.9	13:16:32		60.9	60.9
58.3	13:16:33		58.3	58.3
57.2	13:16:34		57.2	57.2
57.5	13:16:35		57.5	57.5
58.2	13:16:36		58.2	58.2
60.0	13:16:37		60.0	60.0
63.0	13:16:38		63.0	63.0
61.4	13:16:39		61.4	61.4
60.7	13:16:40		60.7	60.7
59.6	13:16:41		59.6	59.6
58.4	13:16:42		58.4	58.4
57.8	13:16:43		57.8	57.8
57.4	13:16:44		57.4	57.4
56.4	13:16:45		56.4	56.4
55.5	13:16:46		55.5	55.5
54.9	13:16:47		54.9	54.9
53.8	13:16:48		53.8	53.8
54.2	13:16:49		54.2	54.2
54.4	13:16:50		54.4	54.4
53.4	13:16:51		53.4	53.4
53.7	13:16:52		53.7	53.7
54.3	13:16:53		54.3	54.3
54.2	13:16:54		54.2	54.2
53.1	13:16:55		53.1	53.1
53.7	13:16:56		53.7	53.7
55.7	13:16:57		55.7	55.7
57.1	13:16:58		57.1	57.1
57.0	13:16:59		57.0	57.0
61.3	13:17:00		61.3	61.3
68.1	13:17:01		68.1	68.1
70.6	13:17:02		70.6	70.6
68.4	13:17:03		68.4	68.4
64.8	13:17:04		64.8	64.8
61.4	13:17:05		61.4	61.4
58.1	13:17:06		58.1	58.1
56.2	13:17:07		56.2	56.2
54.5	13:17:08		54.5	54.5
55.1	13:17:09		55.1	55.1
54.5	13:17:10		54.5	54.5
53.5	13:17:11		53.5	53.5
53.2	13:17:12		53.2	53.2
53.8	13:17:13		53.8	53.8
54.5	13:17:14		54.5	54.5
54.1	13:17:15		54.1	54.1
53.5	13:17:16		53.5	53.5
54.0	13:17:17		54.0	54.0
54.4	13:17:18		54.4	54.4
54.9	13:17:19		54.9	54.9
53.7	13:17:20		53.7	53.7
53.0	13:17:21		53.0	53.0
53.2	13:17:22		53.2	53.2
53.3	13:17:23		53.3	53.3
53.2	13:17:24		53.2	53.2
53.2	13:17:25		53.2	53.2
54.1	13:17:26		54.1	54.1
53.8	13:17:27		53.8	53.8
55.0	13:17:28		55.0	55.0
55.2	13:17:29		55.2	55.2
54.0	13:17:30		54.0	54.0
53.5	13:17:31		53.5	53.5
54.4	13:17:32		54.4	54.4
57.6	13:17:33		57.6	57.6
65.1	13:17:34		65.1	65.1
71.7	13:17:35		71.7	71.7
71.2	13:17:36		71.2	71.2
67.9	13:17:37		67.9	67.9
64.3	13:17:38		64.3	64.3
60.9	13:17:39		60.9	60.9
58.0	13:17:40		58.0	58.0
57.1	13:17:41		57.1	57.1
56.4	13:17:42		56.4	56.4
55.1	13:17:43		55.1	55.1
54.6	13:17:44		54.6	54.6
54.9	13:17:45		54.9	54.9
55.8	13:17:46		55.8	55.8
55.7	13:17:47		55.7	55.7
55.3	13:17:48		55.3	55.3
56.0	13:17:49		56.0	56.0
57.9	13:17:50		57.9	57.9
61.8	13:17:51		61.8	61.8
69.4	13:17:52		69.4	69.4
71.3	13:17:53		71.3	71.3
69.2	13:17:54		69.2	69.2
65.7	13:17:55		65.7	65.7
61.9	13:17:56		61.9	61.9
59.0	13:17:57		59.0	59.0
57.0	13:17:58		57.0	57.0
55.8	13:17:59		55.8	55.8
54.9	13:18:00		54.9	54.9
55.0	13:18:01		55.0	55.0
53.5	13:18:02		53.5	53.5
52.8	13:18:03		52.8	52.8
53.5	13:18:04		53.5	53.5
53.5	13:18:05		53.5	53.5
52.4	13:18:06		52.4	52.4
53.1	13:18:07		53.1	53.1
55.2	13:18:08		55.2	55.2
56.4	13:18:09		56.4	56.4
54.8	13:18:10		54.8	54.8
52.9	13:18:11		52.9	52.9
53.5	13:18:12		53.5	53.5

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
40.9	13:21:50		40.9	40.9
40.3	13:21:51		40.3	40.3
39.5	13:21:52		39.5	39.5
39.7	13:21:53		39.7	39.7
40.5	13:21:54		40.5	40.5
41.3	13:21:55		41.3	41.3
42.0	13:21:56		42.0	42.0
41.6	13:21:57		41.6	41.6
41.1	13:21:58		41.1	41.1
40.7	13:21:59		40.7	40.7
40.5	13:22:00		40.5	40.5
40.6	13:22:01		40.6	40.6
40.7	13:22:02		40.7	40.7
39.8	13:22:03		39.8	39.8
39.6	13:22:04		39.6	39.6
39.4	13:22:05		39.4	39.4
39.5	13:22:06		39.5	39.5
40.3	13:22:07		40.3	40.3
40.8	13:22:08		40.8	40.8
40.9	13:22:09		40.9	40.9
41.3	13:22:10		41.3	41.3
41.6	13:22:11		41.6	41.6
43.2	13:22:12		43.2	43.2
43.4	13:22:13		43.4	43.4
43.3	13:22:14		43.3	43.3
42.8	13:22:15		42.8	42.8
43.2	13:22:16		43.2	43.2
43.3	13:22:17		43.3	43.3
43.1	13:22:18		43.1	43.1
43.9	13:22:19		43.9	43.9
43.4	13:22:20		43.4	43.4
43.3	13:22:21		43.3	43.3
43.0	13:22:22		43.0	43.0
43.0	13:22:23		43.0	43.0
43.8	13:22:24		43.8	43.8
44.0	13:22:25		44.0	44.0
44.0	13:22:26		44.0	44.0
43.5	13:22:27		43.5	43.5
42.5	13:22:28		42.5	42.5
44.6	13:22:29		44.6	44.6
44.1	13:22:30		44.1	44.1
42.3	13:22:31		42.3	42.3
40.9	13:22:32		40.9	40.9
39.8	13:22:33		39.8	39.8
39.8	13:22:34		39.8	39.8
39.9	13:22:35		39.9	39.9
40.1	13:22:36		40.1	40.1
39.2	13:22:37		39.2	39.2
38.7	13:22:38		38.7	38.7
38.6	13:22:39		38.6	38.6
38.9	13:22:40		38.9	38.9
38.7	13:22:41		38.7	38.7
38.9	13:22:42		38.9	38.9
39.2	13:22:43		39.2	39.2
39.8	13:22:44		39.8	39.8
39.8	13:22:45		39.8	39.8
39.5	13:22:46		39.5	39.5
38.8	13:22:47		38.8	38.8
38.8	13:22:48		38.8	38.8
39.0	13:22:49		39.0	39.0
38.4	13:22:50		38.4	38.4
38.3	13:22:51		38.3	38.3
38.5	13:22:52		38.5	38.5
38.1	13:22:53		38.1	38.1
38.8	13:22:54		38.8	38.8
38.4	13:22:55		38.4	38.4
38.4	13:22:56		38.4	38.4
38.9	13:22:57		38.9	38.9
38.4	13:22:58		38.4	38.4
39.0	13:22:59		39.0	39.0
39.3	13:23:00		39.3	39.3
38.5	13:23:01		38.5	38.5
38.3	13:23:02		38.3	38.3
38.9	13:23:03		38.9	38.9
39.4	13:23:04		39.4	39.4
40.5	13:23:05		40.5	40.5
40.0	13:23:06		40.0	40.0
39.1	13:23:07		39.1	39.1
38.6	13:23:08		38.6	38.6
38.7	13:23:09		38.7	38.7
38.9	13:23:10		38.9	38.9
38.6	13:23:11		38.6	38.6
38.8	13:23:12		38.8	38.8
38.7	13:23:13		38.7	38.7
38.6	13:23:14		38.6	38.6
38.0	13:23:15		38.0	38.0
37.7	13:23:16		37.7	37.7
37.4	13:23:17		37.4	37.4
37.9	13:23:18		37.9	37.9
38.7	13:23:19		38.7	38.7
38.5	13:23:20		38.5	38.5
38.8	13:23:21		38.8	38.8
39.2	13:23:22		39.2	39.2
39.4	13:23:23		39.4	39.4
39.2	13:23:24		39.2	39.2
40.0	13:23:25		40.0	40.0
41.0	13:23:26		41.0	41.0
40.1	13:23:27		40.1	40.1
39.1	13:23:28		39.1	39.1
39.2	13:23:29		39.2	39.2
39.3	13:23:30		39.3	39.3
39.7	13:23:31		39.7	39.7
39.7	13:23:32		39.7	39.7
39.7	13:23:33		39.7	39.7
39.3	13:23:34		39.3	39.3
39.2	13:23:35		39.2	39.2
39.6	13:23:36		39.6	39.6
39.6	13:23:37		39.6	39.6
39.9	13:23:38		39.9	39.9
40.0	13:23:39		40.0	40.0
39.8	13:23:40		39.8	39.8
39.3	13:23:41		39.3	39.3
39.2	13:23:42		39.2	39.2
39.0	13:23:43		39.0	39.0
38.2	13:23:44		38.2	38.2
39.2	13:23:45		39.2	39.2
38.8	13:23:46		38.8	38.8
38.5	13:23:47		38.5	38.5
39.1	13:23:48		39.1	39.1
39.4	13:23:49		39.4	39.4
39.2	13:23:50		39.2	39.2
38.5	13:23:51		38.5	38.5
38.2	13:23:52		38.2	38.2
37.9	13:23:53		37.9	37.9
37.6	13:23:54		37.6	37.6
37.1	13:23:55		37.1	37.1
36.7	13:23:56		36.7	36.7
36.8	13:23:57		36.8	36.8
37.4	13:23:58		37.4	37.4
38.3	13:23:59		38.3	38.3
37.8	13:24:00		37.8	37.8
37.1	13:24:01		37.1	37.1
37.2	13:24:02		37.2	37.2
37.0	13:24:03		37.0	37.0
36.9	13:24:04		36.9	36.9
37.0	13:24:05		37.0	37.0
36.7	13:24:06		36.7	36.7
37.0	13:24:07		37.0	37.0
37.0	13:24:08		37.0	37.0
36.9	13:24:09		36.9	36.9
36.6	13:24:10		36.6	36.6
36.2	13:24:11		36.2	36.2
36.0	13:24:12		36.0	36.0
35.8	13:24:13		35.8	35.8
35.8	13:24:14		35.8	35.8
35.8	13:24:15		35.8	35.8
35.9	13:24:16		35.9	35.9
36.1	13:24:17		36.1	36.1
36.3	13:24:18		36.3	36.3
36.3	13:24:19		36.3	36.3
36.6	13:24:20		36.6	36.6
36.5	13:24:21		36.5	36.5
36.3	13:24:22		36.3	36.3
36.4	13:24:23		36.4	36.4
36.6	13:24:24		36.6	36.6
36.5	13:24:25		36.5	36.5
37.1	13:24:26		37.1	37.1
37.5	13:24:27		37.5	37.5
37.7	13:24:28		37.7	37.7
37.1	13:24:29		37.1	37.1
36.7	13:24:30		36.7	36.7
36.6	13:24:31		36.6	36.6
36.9	13:24:32		36.9	36.9
36.8	13:24:33		36.8	36.8
38.7	13:24:34		38.7	38.7
37.8	13:24:35		37.8	37.8
38.0	13:24:36		38.0	38.0
38.1	13:24:37		38.1	38.1
37.8	13:24:38		37.8	37.8
37.4	13:24:39		37.4	37.4
36.9	13:24:40		36.9	36.9
37.2	13:24:41		37.2	37.2
37.0	13:24:42		37.0	37.0
37.0	13:24:43		37.0	37.0

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
49.1	13:03:50		49.1	49.1
48.6	13:03:51		48.6	48.6
47.7	13:03:52		47.7	47.7
49.2	13:03:53		49.2	49.2
54.9	13:03:54		54.9	54.9
55.1	13:03:55		55.1	55.1
53.2	13:03:56		53.2	53.2
50.9	13:03:57		50.9	50.9
49.7	13:03:58		49.7	49.7
48.8	13:03:59		48.8	48.8
49.1	13:04:00		49.1	49.1
48.5	13:04:01		48.5	48.5
50.3	13:04:02		50.3	50.3
48.5	13:04:03		48.5	48.5
46.6	13:04:04		46.6	46.6
45.8	13:04:05		45.8	45.8
46.3	13:04:06		46.3	46.3
46.9	13:04:07		46.9	46.9
47.1	13:04:08		47.1	47.1
51.2	13:04:09		51.2	51.2
52.4	13:04:10		52.4	52.4
51.2	13:04:11		51.2	51.2
48.3	13:04:12		48.3	48.3
45.6	13:04:13		45.6	45.6
44.6	13:04:14		44.6	44.6
44.9	13:04:15		44.9	44.9
44.9	13:04:16		44.9	44.9
43.9	13:04:17		43.9	43.9
42.8	13:04:18		42.8	42.8
48.7	13:04:19		48.7	48.7
49.0	13:04:20		49.0	49.0
46.9	13:04:21		46.9	46.9
48.5	13:04:22		48.5	48.5
53.7	13:04:23		53.7	53.7
54.2	13:04:24		54.2	54.2
55.6	13:04:25		55.6	55.6
52.5	13:04:26		52.5	52.5
49.9	13:04:27		49.9	49.9
46.9	13:04:28		46.9	46.9
44.4	13:04:29		44.4	44.4
43.6	13:04:30		43.6	43.6
43.1	13:04:31		43.1	43.1
49.0	13:04:32		49.0	49.0
47.6	13:04:33		47.6	47.6
47.1	13:04:34		47.1	47.1
48.9	13:04:35		48.9	48.9
47.6	13:04:36		47.6	47.6
45.6	13:04:37		45.6	45.6
43.9	13:04:38		43.9	43.9
45.4	13:04:39		45.4	45.4
48.1	13:04:40		48.1	48.1
46.7	13:04:41		46.7	46.7
44.8	13:04:42		44.8	44.8
42.9	13:04:43		42.9	42.9
42.5	13:04:44		42.5	42.5
46.4	13:04:45		46.4	46.4
47.3	13:04:46		47.3	47.3
46.8	13:04:47		46.8	46.8
44.5	13:04:48		44.5	44.5
43.7	13:04:49		43.7	43.7
42.9	13:04:50		42.9	42.9
46.3	13:04:51		46.3	46.3
50.2	13:04:52		50.2	50.2
51.8	13:04:53		51.8	51.8
49.2	13:04:54		49.2	49.2
47.4	13:04:55		47.4	47.4
49.9	13:04:56		49.9	49.9
47.7	13:04:57		47.7	47.7
45.1	13:04:58		45.1	45.1
45.1	13:04:59		45.1	45.1
46.7	13:05:00		46.7	46.7
46.8	13:05:01		46.8	46.8
44.4	13:05:02		44.4	44.4
44.0	13:05:03		44.0	44.0
45.5	13:05:04		45.5	45.5
46.1	13:05:05		46.1	46.1
47.2	13:05:06		47.2	47.2
50.9	13:05:07		50.9	50.9
48.5	13:05:08		48.5	48.5
45.7	13:05:09		45.7	45.7
44.2	13:05:10		44.2	44.2
43.8	13:05:11		43.8	43.8
43.4	13:05:12		43.4	43.4
47.3	13:05:13		47.3	47.3
47.7	13:05:14		47.7	47.7
46.1	13:05:15		46.1	46.1
44.7	13:05:16		44.7	44.7
43.0	13:05:17		43.0	43.0
41.9	13:05:18		41.9	41.9
43.4	13:05:19		43.4	43.4
43.2	13:05:20		43.2	43.2
42.7	13:05:21		42.7	42.7
43.0	13:05:22		43.0	43.0
45.0	13:05:23		45.0	45.0
45.5	13:05:24		45.5	45.5
47.1	13:05:25		47.1	47.1
47.2	13:05:26		47.2	47.2
45.3	13:05:27		45.3	45.3
47.0	13:05:28		47.0	47.0
52.2	13:05:29		52.2	52.2
53.0	13:05:30		53.0	53.0
50.6	13:05:31		50.6	50.6
49.6	13:05:32		49.6	49.6
49.5	13:05:33		49.5	49.5
50.6	13:05:34		50.6	50.6
50.6	13:05:35		50.6	50.6
52.1	13:05:36		52.1	52.1
54.1	13:05:37		54.1	54.1
52.6	13:05:38		52.6	52.6
50.2	13:05:39		50.2	50.2
50.9	13:05:40		50.9	50.9
55.9	13:05:41		55.9	55.9
56.3	13:05:42		56.3	56.3
52.8	13:05:43		52.8	52.8
49.7	13:05:44		49.7	49.7
48.0	13:05:45		48.0	48.0
47.0	13:05:46		47.0	47.0
46.1	13:05:47		46.1	46.1
44.9	13:05:48		44.9	44.9
48.7	13:05:49		48.7	48.7
54.2	13:05:50		54.2	54.2
52.8	13:05:51		52.8	52.8
50.9	13:05:52		50.9	50.9
48.5	13:05:53		48.5	48.5
46.4	13:05:54		46.4	46.4
47.3	13:05:55		47.3	47.3
49.1	13:05:56		49.1	49.1
48.3	13:05:57		48.3	48.3
49.8	13:05:58		49.8	49.8
49.3	13:05:59		49.3	49.3
47.3	13:06:00		47.3	47.3
47.1	13:06:01		47.1	47.1
47.0	13:06:02		47.0	47.0
46.7	13:06:03		46.7	46.7
46.5	13:06:04		46.5	46.5
47.0	13:06:05		47.0	47.0
48.0	13:06:06		48.0	48.0
47.5	13:06:07		47.5	47.5
45.7	13:06:08		45.7	45.7
48.4	13:06:09		48.4	48.4
51.6	13:06:10		51.6	51.6
48.2	13:06:11		48.2	48.2
46.1	13:06:12		46.1	46.1
45.5	13:06:13		45.5	45.5
43.0	13:06:14		43.0	43.0
41.5	13:06:15		41.5	41.5
40.4	13:06:16		40.4	40.4
40.6	13:06:17		40.6	40.6
42.6	13:06:18		42.6	42.6
42.2	13:06:19		42.2	42.2
41.4	13:06:20		41.4	41.4
41.5	13:06:21		41.5	41.5
42.1	13:06:22		42.1	42.1
43.6	13:06:23		43.6	43.6
47.0	13:06:24		47.0	47.0
46.1	13:06:25		46.1	46.1
44.3	13:06:26		44.3	44.3
45.2	13:06:27		45.2	45.2
44.5	13:06:28		44.5	44.5
48.0	13:06:29		48.0	48.0
53.7	13:06:30		53.7	53.7
53.7	13:06:31		53.7	53.7

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
53.3	13:18:13		53.3	53.3
53.4	13:18:14		53.4	53.4
53.9	13:18:15		53.9	53.9
54.0	13:18:16		54.0	54.0
53.7	13:18:17		53.7	53.7
52.8	13:18:18		52.8	52.8
52.7	13:18:19		52.7	52.7
53.9	13:18:20		53.9	53.9
53.7	13:18:21		53.7	53.7
52.5	13:18:22		52.5	52.5
52.6	13:18:23		52.6	52.6
53.0	13:18:24		53.0	53.0
52.8	13:18:25		52.8	52.8
53.2	13:18:26		53.2	53.2
52.7	13:18:27		52.7	52.7
52.6	13:18:28		52.6	52.6
53.4	13:18:29		53.4	53.4
53.7	13:18:30		53.7	53.7
53.6	13:18:31		53.6	53.6
53.8	13:18:32		53.8	53.8
53.5	13:18:33		53.5	53.5
53.5	13:18:34		53.5	53.5
54.6	13:18:35		54.6	54.6
56.0	13:18:36		56.0	56.0
57.9	13:18:37		57.9	57.9
57.4	13:18:38		57.4	57.4
56.6	13:18:39		56.6	56.6
55.5	13:18:40		55.5	55.5
55.7	13:18:41		55.7	55.7
57.1	13:18:42		57.1	57.1
59.1	13:18:43		59.1	59.1
60.2	13:18:44		60.2	60.2
61.0	13:18:45		61.0	61.0
60.7	13:18:46		60.7	60.7
59.3	13:18:47		59.3	59.3
58.1	13:18:48		58.1	58.1
57.2	13:18:49		57.2	57.2
56.4	13:18:50		56.4	56.4
56.2	13:18:51		56.2	56.2
57.3	13:18:52		57.3	57.3
60.9	13:18:53		60.9	60.9
66.7	13:18:54		66.7	66.7
70.2	13:18:55		70.2	70.2
68.5	13:18:56		68.5	68.5
64.9	13:18:57		64.9	64.9
61.8	13:18:58		61.8	61.8
59.3	13:18:59		59.3	59.3
56.9	13:19:00		56.9	56.9
55.7	13:19:01		55.7	55.7
54.8	13:19:02		54.8	54.8
54.0	13:19:03		54.0	54.0
53.8	13:19:04		53.8	53.8
53.5	13:19:05		53.5	53.5
53.6	13:19:06		53.6	53.6
53.4	13:19:07		53.4	53.4
52.8	13:19:08		52.8	52.8
54.0	13:19:09		54.0	54.0
54.1	13:19:10		54.1	54.1
54.3	13:19:11		54.3	54.3
53.8	13:19:12		53.8	53.8
53.9	13:19:13		53.9	53.9
53.6	13:19:14		53.6	53.6
54.1	13:19:15		54.1	54.1
54.7	13:19:16		54.7	54.7
54.0	13:19:17		54.0	54.0
54.3	13:19:18		54.3	54.3
54.5	13:19:19		54.5	54.5
55.3	13:19:20		55.3	55.3
57.2	13:19:21		57.2	57.2
66.2	13:19:22		66.2	66.2
63.7	13:19:23		63.7	63.7
61.1	13:19:24		61.1	61.1
58.6	13:19:25		58.6	58.6
56.1	13:19:26		56.1	56.1
55.8	13:19:27		55.8	55.8
55.7	13:19:28		55.7	55.7
55.2	13:19:29		55.2	55.2
55.7	13:19:30		55.7	55.7
56.9	13:19:31		56.9	56.9
59.1	13:19:32		59.1	59.1
59.1	13:19:33		59.1	59.1
58.1	13:19:34		58.1	58.1
58.8	13:19:35		58.8	58.8
58.5	13:19:36		58.5	58.5
58.7	13:19:37		58.7	58.7
59.1	13:19:38		59.1	59.1
59.3	13:19:39		59.3	59.3
60.3	13:19:40		60.3	60.3
62.0	13:19:41		62.0	62.0
66.4	13:19:42		66.4	66.4
68.1	13:19:43		68.1	68.1
67.0	13:19:44		67.0	67.0
66.4	13:19:45		66.4	66.4
65.2	13:19:46		65.2	65.2
63.8	13:19:47		63.8	63.8
63.9	13:19:48		63.9	63.9
64.1	13:19:49		64.1	64.1
63.2	13:19:50		63.2	63.2
63.5	13:19:51		63.5	63.5
68.0	13:19:52		68.0	68.0
70.7	13:19:53		70.7	70.7
70.6	13:19:54		70.6	70.6
68.3	13:19:55		68.3	68.3
65.5	13:19:56		65.5	65.5
62.8	13:19:57		62.8	62.8
61.1	13:19:58		61.1	61.1
60.1	13:19:59		60.1	60.1
60.5	13:20:00		60.5	60.5
61.8	13:20:01		61.8	61.8
62.0	13:20:02		62.0	62.0
62.6	13:20:03		62.6	62.6
65.1	13:20:04		65.1	65.1
65.1	13:20:05		65.1	65.1
65.4	13:20:06		65.4	65.4
66.5	13:20:07		66.5	66.5
66.6	13:20:08		66.6	66.6
68.2	13:20:09		68.2	68.2
69.3	13:20:10		69.3	69.3
70.3	13:20:11		70.3	70.3
70.2	13:20:12		70.2	70.2
68.9	13:20:13		68.9	68.9
67.3	13:20:14		67.3	67.3
66.6	13:20:15		66.6	66.6
66.0	13:20:16		66.0	66.0
65.3	13:20:17		65.3	65.3
64.5	13:20:18		64.5	64.5
63.8	13:20:19		63.8	63.8
63.2	13:20:20		63.2	63.2
62.9	13:20:21		62.9	62.9
62.8	13:20:22		62.8	62.8
63.1	13:20:23		63.1	63.1
62.3	13:20:24		62.3	62.3
62.6	13:20:25		62.6	62.6
64.0	13:20:26		64.0	64.0
65.7	13:20:27		65.7	65.7
67.6	13:20:28		67.6	67.6
68.0	13:20:29		68.0	68.0
68.6	13:20:30		68.6	68.6
68.4	13:20:31		68.4	68.4
67.8	13:20:32		67.8	67.8
65.9	13:20:33		65.9	65.9
63.0	13:20:34		63.0	63.0
60.4	13:20:35		60.4	60.4
58.7	13:20:36		58.7	58.7
58.0	13:20:37		58.0	58.0
58.3	13:20:38		58.3	58.3
60.7	13:20:39		60.7	60.7
62.0	13:20:40		62.0	62.0
60.8	13:20:41		60.8	60.8
58.4	13:20:42		58.4	58.4
55.6	13:20:43		55.6	55.6
53.7	13:20:44		53.7	53.7
52.6	13:20:45		52.6	52.6
52.6	13:20:46		52.6	52.6
53.3	13:20:47		53.3	53.3
52.7	13:20:48		52.7	52.7
52.5	13:20:49		52.5	52.5
54.0	13:20:50		54.0	54.0
53.6	13:20:51		53.6	53.6
55.3	13:20:52		55.3	55.3
54.3	13:20:53		54.3	54.3
52.8	13:20:54		52.8	52.8

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
36.7	13:24:44		36.7	36.7
36.3	13:24:45		36.3	36.3
35.9	13:24:46		35.9	35.9
35.9	13:24:47		35.9	35.9
36.5	13:24:48		36.5	36.5
37.1	13:24:49		37.1	37.1
36.6	13:24:50		36.6	36.6
36.5	13:24:51		36.5	36.5
36.8	13:24:52		36.8	36.8
36.8	13:24:53		36.8	36.8
36.8	13:24:54		36.8	36.8
37.1	13:24:55		37.1	37.1
37.2	13:24:56		37.2	37.2
37.0	13:24:57		37.0	37.0
37.9	13:24:58		37.9	37.9
39.2	13:24:59		39.2	39.2
38.9	13:25:00		38.9	38.9
38.2	13:25:01		38.2	38.2
37.6	13:25:02		37.6	37.6
37.1	13:25:03		37.1	37.1
37.0	13:25:04		37.0	37.0
36.8	13:25:05		36.8	36.8
36.5	13:25:06		36.5	36.5
36.6	13:25:07		36.6	36.6
36.6	13:25:08		36.6	36.6
36.7	13:25:09		36.7	36.7
36.6	13:25:10		36.6	36.6
36.8	13:25:11		36.8	36.8
36.9	13:25:12		36.9	36.9
37.2	13:25:13		37.2	37.2
37.6	13:25:14		37.6	37.6
37.7	13:25:15		37.7	37.7
37.0	13:25:16		37.0	37.0
36.6	13:25:17		36.6	36.6
36.7	13:25:18		36.7	36.7
37.9	13:25:19		37.9	37.9
38.1	13:25:20		38.1	38.1
38.0	13:25:21		38.0	38.0
37.7	13:25:22		37.7	37.7
37.6	13:25:23		37.6	37.6
37.5	13:25:24		37.5	37.5
37.4	13:25:25		37.4	37.4
37.3	13:25:26		37.3	37.3
37.7	13:25:27		37.7	37.7
37.9	13:25:28		37.9	37.9
37.4	13:25:29		37.4	37.4
37.3	13:25:30		37.3	37.3
37.8	13:25:31		37.8	37.8
37.6	13:25:32		37.6	37.6
38.0	13:25:33		38.0	38.0
38.4	13:25:34		38.4	38.4
38.7	13:25:35		38.7	38.7
38.1	13:25:36		38.1	38.1
37.7	13:25:37		37.7	37.7
37.7	13:25:38		37.7	37.7
37.7	13:25:39		37.7	37.7
38.1	13:25:40		38.1	38.1
38.6	13:25:41		38.6	38.6
38.1	13:25:42		38.1	38.1
38.4	13:25:43		38.4	38.4
39.1	13:25:44		39.1	39.1
39.7	13:25:45		39.7	39.7
39.8	13:25:46		39.8	39.8
39.4	13:25:47		39.4	39.4
38.8	13:25:48		38.8	38.8
38.9	13:25:49		38.9	38.9
39.3	13:25:50		39.3	39.3
39.3	13:25:51		39.3	39.3
39.3	13:25:52		39.3	39.3
39.5	13:25:53		39.5	39.5
39.8	13:25:54		39.8	39.8
39.9	13:25:55		39.9	39.9
40.1	13:25:56		40.1	40.1
39.9	13:25:57		39.9	39.9
39.6	13:25:58		39.6	39.6
39.6	13:25:59		39.6	39.6
40.2	13:26:00		40.2	40.2
41.1	13:26:01		41.1	41.1
40.8	13:26:02		40.8	40.8
40.4	13:26:03		40.4	40.4
40.2	13:26:04		40.2	40.2
41.1	13:26:05		41.1	41.1
41.4	13:26:06		41.4	41.4
41.2	13:26:07		41.2	41.2
41.6	13:26:08		41.6	41.6
41.8	13:26:09		41.8	41.8
41.8	13:26:10		41.8	41.8
41.5	13:26:11		41.5	41.5
42.2	13:26:12		42.2	42.2
42.6	13:26:13		42.6	42.6
41.8	13:26:14		41.8	41.8
41.2	13:26:15		41.2	41.2
41.4	13:26:16		41.4	41.4
41.9	13:26:17		41.9	41.9
43.5	13:26:18		43.5	43.5
45.0	13:26:19		45.0	45.0
46.9	13:26:20		46.9	46.9
50.2	13:26:21		50.2	50.2
54.1	13:26:22		54.1	54.1
56.2	13:26:23		56.2	56.2
55.1	13:26:24		55.1	55.1
52.2	13:26:25		52.2	52.2
48.9	13:26:26		48.9	48.9
45.9	13:26:27		45.9	45.9
43.6	13:26:28		43.6	43.6
41.8	13:26:29		41.8	41.8
41.3	13:26:30		41.3	41.3
41.0	13:26:31		41.0	41.0
40.0	13:26:32		40.0	40.0
39.6	13:26:33		39.6	39.6
39.2	13:26:34		39.2	39.2
38.5	13:26:35		38.5	38.5
38.7	13:26:36		38.7	38.7
38.7	13:26:37		38.7	38.7
38.1	13:26:38		38.1	38.1
37.9	13:26:39		37.9	37.9
38.5	13:26:40		38.5	38.5
39.3	13:26:41		39.3	39.3
39.4	13:26:42		39.4	39.4
38.5	13:26:43		38.5	38.5
38.0	13:26:44		38.0	38.0
38.2	13:26:45		38.2	38.2
38.7	13:26:46		38.7	38.7
38.4	13:26:47		38.4	38.4
38.5	13:26:48		38.5	38.5
39.2	13:26:49		39.2	39.2
39.7	13:26:50		39.7	39.7
38.9	13:26:51		38.9	38.9
38.4	13:26:52		38.4	38.4
38.1	13:26:53		38.1	38.1
38.8	13:26:54		38.8	38.8
41.5	13:26:55		41.5	41.5
40.7	13:26:56		40.7	40.7
39.8	13:26:57		39.8	39.8
38.8	13:26:58		38.8	38.8
38.9	13:26:59		38.9	38.9
39.6	13:27:00		39.6	39.6
39.8	13:27:01		39.8	39.8
40.1	13:27:02		40.1	40.1
39.7	13:27:03		39.7	39.7
39.2	13:27:04		39.2	39.2
39.6	13:27:05		39.6	39.6
40.1	13:27:06		40.1	40.1
40.7	13:27:07		40.7	40.7
40.1	13:27:08		40.1	40.1
40.2	13:27:09		40.2	40.2
40.5	13:27:10		40.5	40.5
41.3	13:27:11		41.3	41.3
42.3	13:27:12		42.3	42.3
42.1	13:27:13		42.1	42.1
41.7	13:27:14		41.7	41.7
42.4	13:27:15		42.4	42.4
43.2	13:27:16		43.2	43.2
43.3	13:27:17		43.3	43.3
42.6	13:27:18		42.6	42.6
42.0	13:27:19		42.0	42.0
41.1	13:27:20		41.1	41.1
39.7	13:27:21		39.7	39.7
39.4	13:27:22		39.4	39.4
39.0	13:27:23		39.0	39.0
38.9	13:27:24		38.9	38.9
39.5	13:27:25		39.5	39.5

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
52.6	13:06:32		52.6	52.6
51.0	13:06:33		51.0	51.0
49.5	13:06:34		49.5	49.5
50.7	13:06:35		50.7	50.7
50.7	13:06:36		50.7	50.7
50.7	13:06:37		50.7	50.7
48.3	13:06:38		48.3	48.3
46.2	13:06:39		46.2	46.2
46.1	13:06:40		46.1	46.1
46.1	13:06:41		46.1	46.1
46.8	13:06:42		46.8	46.8
46.4	13:06:43		46.4	46.4
45.5	13:06:44		45.5	45.5
44.5	13:06:45		44.5	44.5
45.6	13:06:46		45.6	45.6
47.2	13:06:47		47.2	47.2
58.1	13:06:48		58.1	58.1
61.4	13:06:49		61.4	61.4
69.6	13:06:50		69.6	69.6
72.6	13:06:51		72.6	72.6
70.8	13:06:52		70.8	70.8
67.3	13:06:53		67.3	67.3
64.2	13:06:54		64.2	64.2
61.6	13:06:55		61.6	61.6
59.4	13:06:56		59.4	59.4
56.7	13:06:57		56.7	56.7
54.0	13:06:58		54.0	54.0
52.4	13:06:59		52.4	52.4
52.0	13:07:00		52.0	52.0
51.0	13:07:01		51.0	51.0
49.2	13:07:02		49.2	49.2
48.6	13:07:03		48.6	48.6
49.8	13:07:04		49.8	49.8
49.3	13:07:05		49.3	49.3
48.0	13:07:06		48.0	48.0
46.0	13:07:07		46.0	46.0
44.1	13:07:08		44.1	44.1
43.2	13:07:09		43.2	43.2
45.2	13:07:10		45.2	45.2
47.5	13:07:11		47.5	47.5
45.5	13:07:12		45.5	45.5
45.9	13:07:13		45.9	45.9
45.6	13:07:14		45.6	45.6
44.7	13:07:15		44.7	44.7
45.1	13:07:16		45.1	45.1
45.4	13:07:17		45.4	45.4
47.4	13:07:18		47.4	47.4
49.6	13:07:19		49.6	49.6
46.9	13:07:20		46.9	46.9
47.2	13:07:21		47.2	47.2
55.0	13:07:22		55.0	55.0
53.9	13:07:23		53.9	53.9
50.3	13:07:24		50.3	50.3
47.9	13:07:25		47.9	47.9
45.0	13:07:26		45.0	45.0
43.4	13:07:27		43.4	43.4
44.3	13:07:28		44.3	44.3
48.4	13:07:29		48.4	48.4
47.6	13:07:30		47.6	47.6
45.2	13:07:31		45.2	45.2
44.2	13:07:32		44.2	44.2
44.1	13:07:33		44.1	44.1
45.1	13:07:34		45.1	45.1
50.3	13:07:35		50.3	50.3
55.2	13:07:36		55.2	55.2
54.6	13:07:37		54.6	54.6
51.3	13:07:38		51.3	51.3
50.1	13:07:39		50.1	50.1
55.0	13:07:40		55.0	55.0
53.2	13:07:41		53.2	53.2
50.0	13:07:42		50.0	50.0
47.2	13:07:43		47.2	47.2
44.5	13:07:44		44.5	44.5
44.2	13:07:45		44.2	44.2
47.5	13:07:46		47.5	47.5
46.3	13:07:47		46.3	46.3
46.4	13:07:48		46.4	46.4
47.4	13:07:49		47.4	47.4
45.8	13:07:50		45.8	45.8
45.9	13:07:51		45.9	45.9
45.5	13:07:52		45.5	45.5
46.0	13:07:53		46.0	46.0
45.6	13:07:54		45.6	45.6
44.6	13:07:55		44.6	44.6
44.6	13:07:56		44.6	44.6
44.8	13:07:57		44.8	44.8
50.3	13:07:58		50.3	50.3
52.1	13:07:59		52.1	52.1
50.1	13:08:00		50.1	50.1
49.0	13:08:01		49.0	49.0
49.9	13:08:02		49.9	49.9
53.9	13:08:03		53.9	53.9
57.9	13:08:04		57.9	57.9
62.2	13:08:05		62.2	62.2
67.9	13:08:06		67.9	67.9
70.2	13:08:07		70.2	70.2
67.9	13:08:08		67.9	67.9
64.2	13:08:09		64.2	64.2
60.5	13:08:10		60.5	60.5
56.8	13:08:11		56.8	56.8
53.8	13:08:12		53.8	53.8
52.3	13:08:13		52.3	52.3
54.0	13:08:14		54.0	54.0
50.9	13:08:15		50.9	50.9
48.0	13:08:16		48.0	48.0
50.9	13:08:17		50.9	50.9
59.2	13:08:18		59.2	59.2
58.0	13:08:19		58.0	58.0
55.2	13:08:20		55.2	55.2
53.5	13:08:21		53.5	53.5
55.1	13:08:22		55.1	55.1
52.5	13:08:23		52.5	52.5
49.8	13:08:24		49.8	49.8
47.6	13:08:25		47.6	47.6
47.2	13:08:26		47.2	47.2
48.1	13:08:27		48.1	48.1
51.6	13:08:28		51.6	51.6
52.7	13:08:29		52.7	52.7
49.6	13:08:30		49.6	49.6
47.4	13:08:31		47.4	47.4
45.7	13:08:32		45.7	45.7
49.1	13:08:33		49.1	49.1
48.7	13:08:34		48.7	48.7
46.2	13:08:35		46.2	46.2
44.3	13:08:36		44.3	44.3
43.3	13:08:37		43.3	43.3
44.2	13:08:38		44.2	44.2
45.8	13:08:39		45.8	45.8
47.1	13:08:40		47.1	47.1
45.2	13:08:41		45.2	45.2
44.4	13:08:42		44.4	44.4
44.2	13:08:43		44.2	44.2
46.8	13:08:44		46.8	46.8
48.5	13:08:45		48.5	48.5
48.6	13:08:46		48.6	48.6
47.6	13:08:47		47.6	47.6
46.2	13:08:48		46.2	46.2
45.6	13:08:49		45.6	45.6
45.7	13:08:50		45.7	45.7
50.3	13:08:51		50.3	50.3
53.7	13:08:52		53.7	53.7
51.0	13:08:53		51.0	51.0
48.1	13:08:54		48.1	48.1
47.4	13:08:55		47.4	47.4
47.1	13:08:56		47.1	47.1
46.9	13:08:57		46.9	46.9
44.9	13:08:58		44.9	44.9
44.4	13:08:59		44.4	44.4
42.7	13:09:00		42.7	42.7
44.2	13:09:01		44.2	44.2
44.6	13:09:02		44.6	44.6
45.4	13:09:03		45.4	45.4
48.2	13:09:04		48.2	48.2
50.1	13:09:05		50.1	50.1
52.6	13:09:06		52.6	52.6
57.4	13:09:07		57.4	57.4
65.5	13:09:08		65.5	65.5
72.3	13:09:09		72.3	72.3
72.6	13:09:10		72.6	72.6
69.7	13:09:11		69.7	69.7
66.3	13:09:12		66.3	66.3
63.3	13:09:13		63.3	63.3

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
51.9	13:20:55		51.9	51.9
52.2	13:20:56		52.2	52.2
52.5	13:20:57		52.5	52.5
53.5	13:20:58		53.5	53.5
53.5	13:20:59		53.5	53.5
54.2	13:21:00		54.2	54.2
56.2	13:21:01		56.2	56.2
58.7	13:21:02		58.7	58.7
65.4	13:21:03		65.4	65.4
69.7	13:21:04		69.7	69.7
69.4	13:21:05		69.4	69.4
66.6	13:21:06		66.6	66.6
70.3	13:21:07		70.3	70.3
78.3	13:21:08		78.3	78.3
76.7	13:21:09		76.7	76.7
73.2	13:21:10		73.2	73.2
69.3	13:21:11		69.3	69.3
65.4	13:21:12		65.4	65.4
61.6	13:21:13		61.6	61.6
58.4	13:21:14		58.4	58.4
56.1	13:21:15		56.1	56.1
54.8	13:21:16		54.8	54.8
53.8	13:21:17		53.8	53.8
53.2	13:21:18		53.2	53.2
51.9	13:21:19		51.9	51.9
51.0	13:21:20		51.0	51.0
51.0	13:21:21		51.0	51.0
50.8	13:21:22		50.8	50.8
51.1	13:21:23		51.1	51.1
51.2	13:21:24		51.2	51.2
52.5	13:21:25		52.5	52.5
53.0	13:21:26		53.0	53.0
51.6	13:21:27		51.6	51.6
51.2	13:21:28		51.2	51.2
51.5	13:21:29		51.5	51.5
50.5	13:21:30		50.5	50.5
51.1	13:21:31		51.1	51.1
50.1	13:21:32		50.1	50.1
50.0	13:21:33		50.0	50.0
51.7	13:21:34		51.7	51.7
51.0	13:21:35		51.0	51.0
52.3	13:21:36		52.3	52.3
52.3	13:21:37		52.3	52.3
51.9	13:21:38		51.9	51.9
51.6	13:21:39		51.6	51.6
51.2	13:21:40		51.2	51.2
51.2	13:21:41		51.2	51.2
51.2	13:21:42		51.2	51.2
51.9	13:21:43		51.9	51.9
52.4	13:21:44		52.4	52.4
52.6	13:21:45		52.6	52.6
53.7	13:21:46		53.7	53.7
52.4	13:21:47		52.4	52.4
51.4	13:21:48		51.4	51.4
51.3	13:21:49		51.3	51.3
51.6	13:21:50		51.6	51.6
52.0	13:21:51		52.0	52.0
52.5	13:21:52		52.5	52.5
52.2	13:21:53		52.2	52.2
52.1	13:21:54		52.1	52.1
53.3	13:21:55		53.3	53.3
53.6	13:21:56		53.6	53.6
53.8	13:21:57		53.8	53.8
52.7	13:21:58		52.7	52.7
52.5	13:21:59		52.5	52.5
53.0	13:22:00		53.0	53.0
52.4	13:22:01		52.4	52.4
53.7	13:22:02		53.7	53.7
52.9	13:22:03		52.9	52.9
51.5	13:22:04		51.5	51.5
51.3	13:22:05		51.3	51.3
52.6	13:22:06		52.6	52.6
51.8	13:22:07		51.8	51.8
51.0	13:22:08		51.0	51.0
50.5	13:22:09		50.5	50.5
51.9	13:22:10		51.9	51.9
52.0	13:22:11		52.0	52.0
51.5	13:22:12		51.5	51.5
50.9	13:22:13		50.9	50.9
50.6	13:22:14		50.6	50.6
51.9	13:22:15		51.9	51.9
52.1	13:22:16		52.1	52.1
53.1	13:22:17		53.1	53.1
52.4	13:22:18		52.4	52.4
52.0	13:22:19		52.0	52.0
51.0	13:22:20		51.0	51.0
51.0	13:22:21		51.0	51.0
53.0	13:22:22		53.0	53.0
52.5	13:22:23		52.5	52.5
51.5	13:22:24		51.5	51.5
51.3	13:22:25		51.3	51.3
51.7	13:22:26		51.7	51.7
52.6	13:22:27		52.6	52.6
52.2	13:22:28		52.2	52.2
52.0	13:22:29		52.0	52.0
51.7	13:22:30		51.7	51.7
50.8	13:22:31		50.8	50.8
50.7	13:22:32		50.7	50.7
50.4	13:22:33		50.4	50.4
51.8	13:22:34		51.8	51.8
53.8	13:22:35		53.8	53.8
59.8	13:22:36		59.8	59.8
72.9	13:22:37		72.9	72.9
73.7	13:22:38		73.7	73.7
71.0	13:22:39		71.0	71.0
67.3	13:22:40		67.3	67.3
63.6	13:22:41		63.6	63.6
60.3	13:22:42		60.3	60.3
57.4	13:22:43		57.4	57.4
54.9	13:22:44		54.9	54.9
53.1	13:22:45		53.1	53.1
53.4	13:22:46		53.4	53.4
52.2	13:22:47		52.2	52.2
51.3	13:22:48		51.3	51.3
50.9	13:22:49		50.9	50.9
51.0	13:22:50		51.0	51.0
51.4	13:22:51		51.4	51.4
54.4	13:22:52		54.4	54.4
55.5	13:22:53		55.5	55.5
53.6	13:22:54		53.6	53.6
53.4	13:22:55		53.4	53.4
53.3	13:22:56		53.3	53.3
52.4	13:22:57		52.4	52.4
52.0	13:22:58		52.0	52.0
51.6	13:22:59		51.6	51.6
51.0	13:23:00		51.0	51.0
51.1	13:23:01		51.1	51.1
52.3	13:23:02		52.3	52.3
51.3	13:23:03		51.3	51.3
49.7	13:23:04		49.7	49.7
49.6	13:23:05		49.6	49.6
50.6	13:23:06		50.6	50.6
51.2	13:23:07		51.2	51.2
51.7	13:23:08		51.7	51.7
52.4	13:23:09		52.4	52.4
53.4	13:23:10		53.4	53.4
52.6	13:23:11		52.6	52.6
52.2	13:23:12		52.2	52.2
54.5	13:23:13		54.5	54.5
53.8	13:23:14		53.8	53.8
53.5	13:23:15		53.5	53.5
52.6	13:23:16		52.6	52.6
52.4	13:23:17		52.4	52.4
52.4	13:23:18		52.4	52.4
52.3	13:23:19		52.3	52.3
51.9	13:23:20		51.9	51.9
52.0	13:23:21		52.0	52.0
52.4	13:23:22		52.4	52.4
53.3	13:23:23		53.3	53.3
53.1	13:23:24		53.1	53.1
53.1	13:23:25		53.1	53.1
52.3	13:23:26		52.3	52.3
52.7	13:23:27		52.7	52.7
53.4	13:23:28		53.4	53.4
52.8	13:23:29		52.8	52.8
52.1	13:23:30		52.1	52.1
51.4	13:23:31		51.4	51.4
51.5	13:23:32		51.5	51.5
52.8	13:23:33		52.8	52.8
53.5	13:23:34		53.5	53.5
52.8	13:23:35		52.8	52.8
52.1	13:23:36		52.1	52.1

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
40.7	13:27:26		40.7	40.7
40.6	13:27:27		40.6	40.6
40.1	13:27:28		40.1	40.1
39.7	13:27:29		39.7	39.7
40.5	13:27:30		40.5	40.5
40.9	13:27:31		40.9	40.9
39.9	13:27:32		39.9	39.9
39.4	13:27:33		39.4	39.4
39.2	13:27:34		39.2	39.2
38.9	13:27:35		38.9	38.9
38.7	13:27:36		38.7	38.7
42.5	13:27:37		42.5	42.5
60.5	13:27:38		60.5	60.5
61.4	13:27:39		61.4	61.4
57.2	13:27:40		57.2	57.2
53.0	13:27:41		53.0	53.0
49.1	13:27:42		49.1	49.1
45.8	13:27:43		45.8	45.8
43.1	13:27:44		43.1	43.1
41.0	13:27:45		41.0	41.0
40.1	13:27:46		40.1	40.1
42.1	13:27:47		42.1	42.1
42.2	13:27:48		42.2	42.2
56.0	13:27:49		56.0	56.0
61.9	13:27:50		61.9	61.9
58.6	13:27:51		58.6	58.6
55.0	13:27:52		55.0	55.0
53.0	13:27:53		53.0	53.0
52.7	13:27:54		52.7	52.7
50.3	13:27:55		50.3	50.3
49.1	13:27:56		49.1	49.1
47.1	13:27:57		47.1	47.1
44.3	13:27:58		44.3	44.3
45.3	13:27:59		45.3	45.3
48.8	13:28:00		48.8	48.8
48.6	13:28:01		48.6	48.6
56.1	13:28:02		56.1	56.1
60.9	13:28:03		60.9	60.9
57.7	13:28:04		57.7	57.7
53.8	13:28:05		53.8	53.8
50.8	13:28:06		50.8	50.8
49.1	13:28:07		49.1	49.1
47.8	13:28:08		47.8	47.8
47.3	13:28:09		47.3	47.3
44.2	13:28:10		44.2	44.2
41.6	13:28:11		41.6	41.6
40.3	13:28:12		40.3	40.3
39.6	13:28:13		39.6	39.6
39.6	13:28:14		39.6	39.6
39.5	13:28:15		39.5	39.5
39.2	13:28:16		39.2	39.2
53.1	13:28:17		53.1	53.1
59.2	13:28:18		59.2	59.2
55.4	13:28:19		55.4	55.4
52.3	13:28:20		52.3	52.3
49.6	13:28:21		49.6	49.6
46.9	13:28:22		46.9	46.9
45.7	13:28:23		45.7	45.7
45.5	13:28:24		45.5	45.5
47.7	13:28:25		47.7	47.7
47.2	13:28:26		47.2	47.2
50.2	13:28:27		50.2	50.2
59.7	13:28:28		59.7	59.7
56.9	13:28:29		56.9	56.9
52.9	13:28:30		52.9	52.9
50.0	13:28:31		50.0	50.0
47.8	13:28:32		47.8	47.8
45.8	13:28:33		45.8	45.8
44.2	13:28:34		44.2	44.2
44.6	13:28:35		44.6	44.6
48.7	13:28:36		48.7	48.7
46.8	13:28:37		46.8	46.8
52.4	13:28:38		52.4	52.4
59.5	13:28:39		59.5	59.5
56.2	13:28:40		56.2	56.2
52.1	13:28:41		52.1	52.1
48.2	13:28:42		48.2	48.2
44.7	13:28:43		44.7	44.7
41.8	13:28:44		41.8	41.8
39.8	13:28:45		39.8	39.8
40.6	13:28:46		40.6	40.6
39.7	13:28:47		39.7	39.7
39.8	13:28:48		39.8	39.8
40.6	13:28:49		40.6	40.6
41.0	13:28:50		41.0	41.0
42.5	13:28:51		42.5	42.5
45.0	13:28:52		45.0	45.0
44.9	13:28:53		44.9	44.9
47.5	13:28:54		47.5	47.5
46.7	13:28:55		46.7	46.7
48.0	13:28:56		48.0	48.0
49.9	13:28:57		49.9	49.9
49.8	13:28:58		49.8	49.8
51.0	13:28:59		51.0	51.0
50.6	13:29:00		50.6	50.6
48.1	13:29:01		48.1	48.1
45.6	13:29:02		45.6	45.6
46.8	13:29:03		46.8	46.8
47.2	13:29:04		47.2	47.2
53.8	13:29:05		53.8	53.8
51.0	13:29:06		51.0	51.0
49.1	13:29:07		49.1	49.1
50.1	13:29:08		50.1	50.1
50.3	13:29:09		50.3	50.3
48.8	13:29:10		48.8	48.8
45.3	13:29:11		45.3	45.3
41.9	13:29:12		41.9	41.9
41.8	13:29:13		41.8	41.8
40.9	13:29:14		40.9	40.9
41.2	13:29:15		41.2	41.2
43.2	13:29:16		43.2	43.2
45.3	13:29:17		45.3	45.3
46.1	13:29:18		46.1	46.1
46.5	13:29:19		46.5	46.5
47.5	13:29:20		47.5	47.5
47.6	13:29:21		47.6	47.6
47.5	13:29:22		47.5	47.5
45.5	13:29:23		45.5	45.5
44.3	13:29:24		44.3	44.3
45.1	13:29:25		45.1	45.1
44.9	13:29:26		44.9	44.9
44.3	13:29:27		44.3	44.3
46.5	13:29:28		46.5	46.5
46.6	13:29:29		46.6	46.6
56.4	13:29:30		56.4	56.4
54.7	13:29:31		54.7	54.7
51.1	13:29:32		51.1	51.1
49.2	13:29:33		49.2	49.2
47.8	13:29:34		47.8	47.8
46.5	13:29:35		46.5	46.5
45.6	13:29:36		45.6	45.6
47.0	13:29:37		47.0	47.0
45.9	13:29:38		45.9	45.9
46.1	13:29:39		46.1	46.1
47.2	13:29:40		47.2	47.2
45.3	13:29:41		45.3	45.3
44.5	13:29:42		44.5	44.5
46.5	13:29:43		46.5	46.5
48.2	13:29:44		48.2	48.2
47.3	13:29:45		47.3	47.3
48.3	13:29:46		48.3	48.3
49.1	13:29:47		49.1	49.1
48.3	13:29:48		48.3	48.3
47.6	13:29:49		47.6	47.6
47.8	13:29:50		47.8	47.8
47.7	13:29:51		47.7	47.7
49.9	13:29:52		49.9	49.9
49.2	13:29:53		49.2	49.2
48.1	13:29:54		48.1	48.1
46.0	13:29:55		46.0	46.0
44.1	13:29:56		44.1	44.1
43.5	13:29:57		43.5	43.5
42.5	13:29:58		42.5	42.5
42.4	13:29:59		42.4	42.4
42.9	13:30:00		42.9	42.9
43.6	13:30:01		43.6	43.6
43.7	13:30:02		43.7	43.7
46.1	13:30:03		46.1	46.1
45.8	13:30:04		45.8	45.8
45.4	13:30:05		45.4	45.4
44.2	13:30:06		44.2	44.2
45.1	13:30:07		45.1	45.1

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
61.2	13:09:14		61.2	61.2
58.8	13:09:15		58.8	58.8
56.4	13:09:16		56.4	56.4
53.4	13:09:17		53.4	53.4
51.3	13:09:18		51.3	51.3
50.4	13:09:19		50.4	50.4
48.8	13:09:20		48.8	48.8
47.7	13:09:21		47.7	47.7
46.9	13:09:22		46.9	46.9
45.9	13:09:23		45.9	45.9
45.4	13:09:24		45.4	45.4
46.3	13:09:25		46.3	46.3
47.6	13:09:26		47.6	47.6
45.5	13:09:27		45.5	45.5
44.1	13:09:28		44.1	44.1
43.8	13:09:29		43.8	43.8
49.9	13:09:30		49.9	49.9
49.4	13:09:31		49.4	49.4
48.9	13:09:32		48.9	48.9
46.5	13:09:33		46.5	46.5
48.0	13:09:34		48.0	48.0
46.8	13:09:35		46.8	46.8
48.3	13:09:36		48.3	48.3
49.0	13:09:37		49.0	49.0
46.6	13:09:38		46.6	46.6
46.1	13:09:39		46.1	46.1
44.6	13:09:40		44.6	44.6
45.3	13:09:41		45.3	45.3
48.2	13:09:42		48.2	48.2
51.0	13:09:43		51.0	51.0
51.7	13:09:44		51.7	51.7
49.0	13:09:45		49.0	49.0
47.7	13:09:46		47.7	47.7
46.2	13:09:47		46.2	46.2
45.4	13:09:48		45.4	45.4
44.8	13:09:49		44.8	44.8
51.3	13:09:50		51.3	51.3
56.7	13:09:51		56.7	56.7
54.5	13:09:52		54.5	54.5
55.3	13:09:53		55.3	55.3
59.9	13:09:54		59.9	59.9
67.4	13:09:55		67.4	67.4
72.4	13:09:56		72.4	72.4
72.0	13:09:57		72.0	72.0
69.3	13:09:58		69.3	69.3
66.0	13:09:59		66.0	66.0
62.9	13:10:00		62.9	62.9
59.8	13:10:01		59.8	59.8
56.6	13:10:02		56.6	56.6
54.1	13:10:03		54.1	54.1
51.6	13:10:04		51.6	51.6
50.1	13:10:05		50.1	50.1
49.4	13:10:06		49.4	49.4
50.1	13:10:07		50.1	50.1
50.2	13:10:08		50.2	50.2
50.3	13:10:09		50.3	50.3
49.7	13:10:10		49.7	49.7
48.3	13:10:11		48.3	48.3
46.6	13:10:12		46.6	46.6
45.5	13:10:13		45.5	45.5
44.9	13:10:14		44.9	44.9
44.5	13:10:15		44.5	44.5
44.2	13:10:16		44.2	44.2
44.5	13:10:17		44.5	44.5
44.4	13:10:18		44.4	44.4
44.9	13:10:19		44.9	44.9
45.5	13:10:20		45.5	45.5
47.0	13:10:21		47.0	47.0
45.8	13:10:22		45.8	45.8
45.4	13:10:23		45.4	45.4
45.0	13:10:24		45.0	45.0
46.9	13:10:25		46.9	46.9
46.9	13:10:26		46.9	46.9
44.6	13:10:27		44.6	44.6
47.4	13:10:28		47.4	47.4
47.0	13:10:29		47.0	47.0
45.1	13:10:30		45.1	45.1
43.1	13:10:31		43.1	43.1
41.7	13:10:32		41.7	41.7
42.0	13:10:33		42.0	42.0
43.2	13:10:34		43.2	43.2
43.0	13:10:35		43.0	43.0
44.6	13:10:36		44.6	44.6
45.9	13:10:37		45.9	45.9
45.0	13:10:38		45.0	45.0
45.5	13:10:39		45.5	45.5
44.6	13:10:40		44.6	44.6
43.8	13:10:41		43.8	43.8
45.5	13:10:42		45.5	45.5
46.9	13:10:43		46.9	46.9
47.8	13:10:44		47.8	47.8
49.2	13:10:45		49.2	49.2
50.8	13:10:46		50.8	50.8
54.6	13:10:47		54.6	54.6
60.3	13:10:48		60.3	60.3
66.5	13:10:49		66.5	66.5
72.0	13:10:50		72.0	72.0
79.5	13:10:51		79.5	79.5
82.4	13:10:52		82.4	82.4
80.1	13:10:53		80.1	80.1
76.2	13:10:54		76.2	76.2
72.1	13:10:55		72.1	72.1
68.1	13:10:56		68.1	68.1
64.2	13:10:57		64.2	64.2
60.4	13:10:58		60.4	60.4
56.8	13:10:59		56.8	56.8
53.6	13:11:00		53.6	53.6
50.9	13:11:01		50.9	50.9
49.2	13:11:02		49.2	49.2
48.4	13:11:03		48.4	48.4
51.6	13:11:04		51.6	51.6
50.2	13:11:05		50.2	50.2
47.5	13:11:06		47.5	47.5
48.8	13:11:07		48.8	48.8
48.4	13:11:08		48.4	48.4
47.0	13:11:09		47.0	47.0
46.0	13:11:10		46.0	46.0
46.3	13:11:11		46.3	46.3
46.6	13:11:12		46.6	46.6
47.9	13:11:13		47.9	47.9
48.4	13:11:14		48.4	48.4
51.0	13:11:15		51.0	51.0
50.1	13:11:16		50.1	50.1
50.2	13:11:17		50.2	50.2
48.6	13:11:18		48.6	48.6
49.9	13:11:19		49.9	49.9
49.2	13:11:20		49.2	49.2
47.6	13:11:21		47.6	47.6
45.6	13:11:22		45.6	45.6
44.4	13:11:23		44.4	44.4
43.4	13:11:24		43.4	43.4
42.6	13:11:25		42.6	42.6
45.3	13:11:26		45.3	45.3
48.1	13:11:27		48.1	48.1
50.9	13:11:28		50.9	50.9
48.9	13:11:29		48.9	48.9
48.1	13:11:30		48.1	48.1
47.8	13:11:31		47.8	47.8
47.5	13:11:32		47.5	47.5
48.3	13:11:33		48.3	48.3
48.8	13:11:34		48.8	48.8
49.2	13:11:35		49.2	49.2
47.6	13:11:36		47.6	47.6
45.6	13:11:37		45.6	45.6
44.3	13:11:38		44.3	44.3
44.7	13:11:39		44.7	44.7
44.2	13:11:40		44.2	44.2
43.6	13:11:41		43.6	43.6
43.7	13:11:42		43.7	43.7
44.6	13:11:43		44.6	44.6
49.8	13:11:44		49.8	49.8
52.9	13:11:45		52.9	52.9
50.9	13:11:46		50.9	50.9
49.1	13:11:47		49.1	49.1
49.9	13:11:48		49.9	49.9
52.7	13:11:49		52.7	52.7
51.5	13:11:50		51.5	51.5
50.1	13:11:51		50.1	50.1
50.8	13:11:52		50.8	50.8
50.0	13:11:53		50.0	50.0
50.2	13:11:54		50.2	50.2
48.8	13:11:55		48.8	48.8

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
51.8	13:23:37		51.8	51.8
51.5	13:23:38		51.5	51.5
51.6	13:23:39		51.6	51.6
52.4	13:23:40		52.4	52.4
53.6	13:23:41		53.6	53.6
56.2	13:23:42		56.2	56.2
60.3	13:23:43		60.3	60.3
68.7	13:23:44		68.7	68.7
73.7	13:23:45		73.7	73.7
74.8	13:23:46		74.8	74.8
75.2	13:23:47		75.2	75.2
72.5	13:23:48		72.5	72.5
68.7	13:23:49		68.7	68.7
64.8	13:23:50		64.8	64.8
61.1	13:23:51		61.1	61.1
58.3	13:23:52		58.3	58.3
56.0	13:23:53		56.0	56.0
54.2	13:23:54		54.2	54.2
53.9	13:23:55		53.9	53.9
52.3	13:23:56		52.3	52.3
50.7	13:23:57		50.7	50.7
52.0	13:23:58		52.0	52.0
53.0	13:23:59		53.0	53.0
53.3	13:24:00		53.3	53.3
53.9	13:24:01		53.9	53.9
53.5	13:24:02		53.5	53.5
53.0	13:24:03		53.0	53.0
53.6	13:24:04		53.6	53.6
52.6	13:24:05		52.6	52.6
50.8	13:24:06		50.8	50.8
51.2	13:24:07		51.2	51.2
52.4	13:24:08		52.4	52.4
51.3	13:24:09		51.3	51.3
51.9	13:24:10		51.9	51.9
54.3	13:24:11		54.3	54.3
54.7	13:24:12		54.7	54.7
54.2	13:24:13		54.2	54.2
53.6	13:24:14		53.6	53.6
54.2	13:24:15		54.2	54.2
53.4	13:24:16		53.4	53.4
51.8	13:24:17		51.8	51.8
50.6	13:24:18		50.6	50.6
51.3	13:24:19		51.3	51.3
55.8	13:24:20		55.8	55.8
56.0	13:24:21		56.0	56.0
53.7	13:24:22		53.7	53.7
52.5	13:24:23		52.5	52.5
52.5	13:24:24		52.5	52.5
51.8	13:24:25		51.8	51.8
50.9	13:24:26		50.9	50.9
52.5	13:24:27		52.5	52.5
52.1	13:24:28		52.1	52.1
51.0	13:24:29		51.0	51.0
52.3	13:24:30		52.3	52.3
52.4	13:24:31		52.4	52.4
52.1	13:24:32		52.1	52.1
52.1	13:24:33		52.1	52.1
53.4	13:24:34		53.4	53.4
53.0	13:24:35		53.0	53.0
52.0	13:24:36		52.0	52.0
52.8	13:24:37		52.8	52.8
52.0	13:24:38		52.0	52.0
51.7	13:24:39		51.7	51.7
50.7	13:24:40		50.7	50.7
50.4	13:24:41		50.4	50.4
53.2	13:24:42		53.2	53.2
52.9	13:24:43		52.9	52.9
52.6	13:24:44		52.6	52.6
51.7	13:24:45		51.7	51.7
51.1	13:24:46		51.1	51.1
50.8	13:24:47		50.8	50.8
52.1	13:24:48		52.1	52.1
53.9	13:24:49		53.9	53.9
58.8	13:24:50		58.8	58.8
68.0	13:24:51		68.0	68.0
71.9	13:24:52		71.9	71.9
69.8	13:24:53		69.8	69.8
66.4	13:24:54		66.4	66.4
63.4	13:24:55		63.4	63.4
61.2	13:24:56		61.2	61.2
58.8	13:24:57		58.8	58.8
56.5	13:24:58		56.5	56.5
55.9	13:24:59		55.9	55.9
55.0	13:25:00		55.0	55.0
54.9	13:25:01		54.9	54.9
55.0	13:25:02		55.0	55.0
56.1	13:25:03		56.1	56.1
54.8	13:25:04		54.8	54.8
53.8	13:25:05		53.8	53.8
53.7	13:25:06		53.7	53.7
53.3	13:25:07		53.3	53.3
53.7	13:25:08		53.7	53.7
55.1	13:25:09		55.1	55.1
55.0	13:25:10		55.0	55.0
55.3	13:25:11		55.3	55.3
55.4	13:25:12		55.4	55.4
54.8	13:25:13		54.8	54.8
54.1	13:25:14		54.1	54.1
53.9	13:25:15		53.9	53.9
53.6	13:25:16		53.6	53.6
55.1	13:25:17		55.1	55.1
55.4	13:25:18		55.4	55.4
53.7	13:25:19		53.7	53.7
53.4	13:25:20		53.4	53.4
53.4	13:25:21		53.4	53.4
53.5	13:25:22		53.5	53.5
53.0	13:25:23		53.0	53.0
52.6	13:25:24		52.6	52.6
53.9	13:25:25		53.9	53.9
54.7	13:25:26		54.7	54.7
55.2	13:25:27		55.2	55.2
57.0	13:25:28		57.0	57.0
61.7	13:25:29		61.7	61.7
69.7	13:25:30		69.7	69.7
72.6	13:25:31		72.6	72.6
71.0	13:25:32		71.0	71.0
67.7	13:25:33		67.7	67.7
64.2	13:25:34		64.2	64.2
60.7	13:25:35		60.7	60.7
57.9	13:25:36		57.9	57.9
55.2	13:25:37		55.2	55.2
54.1	13:25:38		54.1	54.1
53.8	13:25:39		53.8	53.8
53.0	13:25:40		53.0	53.0
53.4	13:25:41		53.4	53.4
51.9	13:25:42		51.9	51.9
51.8	13:25:43		51.8	51.8
52.4	13:25:44		52.4	52.4
52.4	13:25:45		52.4	52.4
54.3	13:25:46		54.3	54.3
54.3	13:25:47		54.3	54.3
54.1	13:25:48		54.1	54.1
54.0	13:25:49		54.0	54.0
53.1	13:25:50		53.1	53.1
51.7	13:25:51		51.7	51.7
51.6	13:25:52		51.6	51.6
52.8	13:25:53		52.8	52.8
52.6	13:25:54		52.6	52.6
52.7	13:25:55		52.7	52.7
53.6	13:25:56		53.6	53.6
53.6	13:25:57		53.6	53.6
52.5	13:25:58		52.5	52.5
51.5	13:25:59		51.5	51.5
52.3	13:26:00		52.3	52.3
52.6	13:26:01		52.6	52.6
52.4	13:26:02		52.4	52.4
52.8	13:26:03		52.8	52.8
52.3	13:26:04		52.3	52.3
52.9	13:26:05		52.9	52.9
52.4	13:26:06		52.4	52.4
54.2	13:26:07		54.2	54.2
55.5	13:26:08		55.5	55.5
54.8	13:26:09		54.8	54.8
54.2	13:26:10		54.2	54.2
54.9	13:26:11		54.9	54.9
54.9	13:26:12		54.9	54.9
58.9	13:26:13		58.9	58.9
69.9	13:26:14		69.9	69.9
72.8	13:26:15		72.8	72.8
70.4	13:26:16		70.4	70.4
66.7	13:26:17		66.7	66.7
62.9	13:26:18		62.9	62.9

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
45.7	13:30:08		45.7	45.7
45.2	13:30:09		45.2	45.2
45.2	13:30:10		45.2	45.2
44.6	13:30:11		44.6	44.6
43.6	13:30:12		43.6	43.6
45.6	13:30:13		45.6	45.6
46.7	13:30:14		46.7	46.7
47.6	13:30:15		47.6	47.6
47.7	13:30:16		47.7	47.7
46.3	13:30:17		46.3	46.3
45.2	13:30:18		45.2	45.2
45.4	13:30:19		45.4	45.4
46.4	13:30:20		46.4	46.4
46.3	13:30:21		46.3	46.3
46.9	13:30:22		46.9	46.9
46.7	13:30:23		46.7	46.7
47.0	13:30:24		47.0	47.0
46.1	13:30:25		46.1	46.1
45.3	13:30:26		45.3	45.3
45.6	13:30:27		45.6	45.6
45.6	13:30:28		45.6	45.6
42.2	13:30:29		42.2	42.2
40.2	13:30:30		40.2	40.2
40.0	13:30:31		40.0	40.0
39.2	13:30:32		39.2	39.2
40.8	13:30:33		40.8	40.8
41.6	13:30:34		41.6	41.6
44.7	13:30:35		44.7	44.7
46.3	13:30:36		46.3	46.3
46.4	13:30:37		46.4	46.4
46.6	13:30:38		46.6	46.6
45.0	13:30:39		45.0	45.0
42.2	13:30:40		42.2	42.2
40.9	13:30:41		40.9	40.9
42.5	13:30:42		42.5	42.5
45.2	13:30:43		45.2	45.2
46.2	13:30:44		46.2	46.2
45.8	13:30:45		45.8	45.8
46.0	13:30:46		46.0	46.0
46.3	13:30:47		46.3	46.3
47.9	13:30:48		47.9	47.9
48.4	13:30:49		48.4	48.4
49.1	13:30:50		49.1	49.1
48.3	13:30:51		48.3	48.3
47.6	13:30:52		47.6	47.6
46.6	13:30:53		46.6	46.6
46.3	13:30:54		46.3	46.3
46.6	13:30:55		46.6	46.6
46.5	13:30:56		46.5	46.5
47.7	13:30:57		47.7	47.7
47.6	13:30:58		47.6	47.6
46.9	13:30:59		46.9	46.9
47.7	13:31:00		47.7	47.7
47.1	13:31:01		47.1	47.1
45.7	13:31:02		45.7	45.7
45.5	13:31:03		45.5	45.5
46.0	13:31:04		46.0	46.0
46.3	13:31:05		46.3	46.3
46.8	13:31:06		46.8	46.8
46.0	13:31:07		46.0	46.0
45.3	13:31:08		45.3	45.3
45.8	13:31:09		45.8	45.8
45.9	13:31:10		45.9	45.9
46.1	13:31:11		46.1	46.1
46.7	13:31:12		46.7	46.7
47.6	13:31:13		47.6	47.6
48.9	13:31:14		48.9	48.9
48.9	13:31:15		48.9	48.9
48.0	13:31:16		48.0	48.0
47.0	13:31:17		47.0	47.0
45.5	13:31:18		45.5	45.5
44.8	13:31:19		44.8	44.8
47.4	13:31:20		47.4	47.4
48.4	13:31:21		48.4	48.4
48.2	13:31:22		48.2	48.2
50.8	13:31:23		50.8	50.8
51.7	13:31:24		51.7	51.7
51.0	13:31:25		51.0	51.0
49.6	13:31:26		49.6	49.6
47.2	13:31:27		47.2	47.2
45.5	13:31:28		45.5	45.5
45.4	13:31:29		45.4	45.4
47.8	13:31:30		47.8	47.8
49.2	13:31:31		49.2	49.2
49.9	13:31:32		49.9	49.9
49.8	13:31:33		49.8	49.8
50.6	13:31:34		50.6	50.6
53.6	13:31:35		53.6	53.6
55.3	13:31:36		55.3	55.3
54.3	13:31:37		54.3	54.3
52.9	13:31:38		52.9	52.9
51.7	13:31:39		51.7	51.7
51.2	13:31:40		51.2	51.2
52.4	13:31:41		52.4	52.4
53.4	13:31:42		53.4	53.4
53.6	13:31:43		53.6	53.6
53.5	13:31:44		53.5	53.5
54.2	13:31:45		54.2	54.2
55.5	13:31:46		55.5	55.5
55.1	13:31:47		55.1	55.1
53.6	13:31:48		53.6	53.6
52.1	13:31:49		52.1	52.1
51.4	13:31:50		51.4	51.4
50.6	13:31:51		50.6	50.6
51.4	13:31:52		51.4	51.4
52.2	13:31:53		52.2	52.2
52.2	13:31:54		52.2	52.2
51.4	13:31:55		51.4	51.4
49.7	13:31:56		49.7	49.7
48.3	13:31:57		48.3	48.3
47.2	13:31:58		47.2	47.2
46.6	13:31:59		46.6	46.6
45.4	13:32:00		45.4	45.4
44.1	13:32:01		44.1	44.1
43.0	13:32:02		43.0	43.0
42.6	13:32:03		42.6	42.6
43.4	13:32:04		43.4	43.4
43.1	13:32:05		43.1	43.1
45.1	13:32:06		45.1	45.1
46.4	13:32:07		46.4	46.4
45.9	13:32:08		45.9	45.9
45.6	13:32:09		45.6	45.6
44.9	13:32:10		44.9	44.9
44.7	13:32:11		44.7	44.7
45.2	13:32:12		45.2	45.2
45.4	13:32:13		45.4	45.4
45.4	13:32:14		45.4	45.4
44.0	13:32:15		44.0	44.0
43.0	13:32:16		43.0	43.0
41.9	13:32:17		41.9	41.9
41.4	13:32:18		41.4	41.4
41.9	13:32:19		41.9	41.9
41.7	13:32:20		41.7	41.7
39.9	13:32:21		39.9	39.9
38.9	13:32:22		38.9	38.9
38.6	13:32:23		38.6	38.6
38.8	13:32:24		38.8	38.8
39.9	13:32:25		39.9	39.9
40.9	13:32:26		40.9	40.9
41.6	13:32:27		41.6	41.6
43.3	13:32:28		43.3	43.3
43.3	13:32:29		43.3	43.3
43.9	13:32:30		43.9	43.9
46.3	13:32:31		46.3	46.3
46.4	13:32:32		46.4	46.4
46.3	13:32:33		46.3	46.3
45.1	13:32:34		45.1	45.1
46.6	13:32:35		46.6	46.6
47.5	13:32:36		47.5	47.5
49.4	13:32:37		49.4	49.4
53.0	13:32:38		53.0	53.0
52.5	13:32:39		52.5	52.5
49.9	13:32:40		49.9	49.9
47.1	13:32:41		47.1	47.1
43.6	13:32:42		43.6	43.6
41.2	13:32:43		41.2	41.2
39.4	13:32:44		39.4	39.4
39.1	13:32:45		39.1	39.1
38.6	13:32:46		38.6	38.6
38.1	13:32:47		38.1	38.1
38.2	13:32:48		38.2	38.2
38.8	13:32:49		38.8	38.8

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
46.5	13:11:56		46.5	46.5
45.1	13:11:57		45.1	45.1
44.1	13:11:58		44.1	44.1
43.4	13:11:59		43.4	43.4
45.3	13:12:00		45.3	45.3
47.8	13:12:01		47.8	47.8
46.1	13:12:02		46.1	46.1
46.5	13:12:03		46.5	46.5
47.8	13:12:04		47.8	47.8
46.6	13:12:05		46.6	46.6
45.2	13:12:06		45.2	45.2
51.0	13:12:07		51.0	51.0
52.6	13:12:08		52.6	52.6
50.6	13:12:09		50.6	50.6
48.7	13:12:10		48.7	48.7
48.9	13:12:11		48.9	48.9
48.5	13:12:12		48.5	48.5
47.1	13:12:13		47.1	47.1
47.6	13:12:14		47.6	47.6
50.3	13:12:15		50.3	50.3
49.6	13:12:16		49.6	49.6
48.5	13:12:17		48.5	48.5
46.8	13:12:18		46.8	46.8
45.7	13:12:19		45.7	45.7
47.3	13:12:20		47.3	47.3
46.7	13:12:21		46.7	46.7
46.9	13:12:22		46.9	46.9
47.9	13:12:23		47.9	47.9
47.5	13:12:24		47.5	47.5
48.1	13:12:25		48.1	48.1
48.7	13:12:26		48.7	48.7
49.2	13:12:27		49.2	49.2
49.8	13:12:28		49.8	49.8
48.3	13:12:29		48.3	48.3
46.7	13:12:30		46.7	46.7
45.9	13:12:31		45.9	45.9
45.2	13:12:32		45.2	45.2
45.1	13:12:33		45.1	45.1
48.6	13:12:34		48.6	48.6
50.6	13:12:35		50.6	50.6
50.1	13:12:36		50.1	50.1
50.3	13:12:37		50.3	50.3
51.1	13:12:38		51.1	51.1
50.4	13:12:39		50.4	50.4
48.0	13:12:40		48.0	48.0
47.3	13:12:41		47.3	47.3
47.1	13:12:42		47.1	47.1
47.7	13:12:43		47.7	47.7
47.6	13:12:44		47.6	47.6
46.5	13:12:45		46.5	46.5
47.5	13:12:46		47.5	47.5
49.8	13:12:47		49.8	49.8
48.6	13:12:48		48.6	48.6
49.5	13:12:49		49.5	49.5
53.4	13:12:50		53.4	53.4
59.4	13:12:51		59.4	59.4
64.7	13:12:52		64.7	64.7
72.0	13:12:53		72.0	72.0
73.2	13:12:54		73.2	73.2
70.1	13:12:55		70.1	70.1
66.2	13:12:56		66.2	66.2
62.3	13:12:57		62.3	62.3
58.5	13:12:58		58.5	58.5
54.9	13:12:59		54.9	54.9
52.1	13:13:00		52.1	52.1
49.3	13:13:01		49.3	49.3
46.9	13:13:02		46.9	46.9
45.0	13:13:03		45.0	45.0
43.9	13:13:04		43.9	43.9
43.5	13:13:05		43.5	43.5
44.6	13:13:06		44.6	44.6
45.1	13:13:07		45.1	45.1
45.7	13:13:08		45.7	45.7
49.7	13:13:09		49.7	49.7
47.9	13:13:10		47.9	47.9
46.9	13:13:11		46.9	46.9
46.6	13:13:12		46.6	46.6
48.7	13:13:13		48.7	48.7
52.1	13:13:14		52.1	52.1
53.5	13:13:15		53.5	53.5
57.2	13:13:16		57.2	57.2
60.7	13:13:17		60.7	60.7
67.4	13:13:18		67.4	67.4
73.7	13:13:19		73.7	73.7
74.5	13:13:20		74.5	74.5
71.2	13:13:21		71.2	71.2
67.2	13:13:22		67.2	67.2
63.2	13:13:23		63.2	63.2
59.3	13:13:24		59.3	59.3
55.6	13:13:25		55.6	55.6
53.1	13:13:26		53.1	53.1
52.5	13:13:27		52.5	52.5
50.7	13:13:28		50.7	50.7
49.1	13:13:29		49.1	49.1
47.5	13:13:30		47.5	47.5
46.6	13:13:31		46.6	46.6
44.9	13:13:32		44.9	44.9
43.4	13:13:33		43.4	43.4
42.8	13:13:34		42.8	42.8
44.7	13:13:35		44.7	44.7
45.8	13:13:36		45.8	45.8
43.6	13:13:37		43.6	43.6
42.3	13:13:38		42.3	42.3
41.6	13:13:39		41.6	41.6
41.6	13:13:40		41.6	41.6
41.4	13:13:41		41.4	41.4
43.7	13:13:42		43.7	43.7
47.2	13:13:43		47.2	47.2
45.0	13:13:44		45.0	45.0
45.2	13:13:45		45.2	45.2
44.8	13:13:46		44.8	44.8
43.8	13:13:47		43.8	43.8
44.7	13:13:48		44.7	44.7
44.6	13:13:49		44.6	44.6
45.1	13:13:50		45.1	45.1
45.2	13:13:51		45.2	45.2
44.5	13:13:52		44.5	44.5
45.4	13:13:53		45.4	45.4
48.1	13:13:54		48.1	48.1
46.5	13:13:55		46.5	46.5
45.9	13:13:56		45.9	45.9
44.0	13:13:57		44.0	44.0
44.2	13:13:58		44.2	44.2
45.3	13:13:59		45.3	45.3
46.1	13:14:00		46.1	46.1
47.9	13:14:01		47.9	47.9
45.5	13:14:02		45.5	45.5
43.5	13:14:03		43.5	43.5
42.5	13:14:04		42.5	42.5
42.4	13:14:05		42.4	42.4
43.9	13:14:06		43.9	43.9
48.1	13:14:07		48.1	48.1
46.5	13:14:08		46.5	46.5
45.0	13:14:09		45.0	45.0
44.9	13:14:10		44.9	44.9
45.4	13:14:11		45.4	45.4
44.6	13:14:12		44.6	44.6
45.7	13:14:13		45.7	45.7
46.5	13:14:14		46.5	46.5
45.0	13:14:15		45.0	45.0
44.0	13:14:16		44.0	44.0
43.6	13:14:17		43.6	43.6
44.1	13:14:18		44.1	44.1
45.7	13:14:19		45.7	45.7
47.3	13:14:20		47.3	47.3
47.6	13:14:21		47.6	47.6
45.1	13:14:22		45.1	45.1
44.6	13:14:23		44.6	44.6
45.9	13:14:24		45.9	45.9
44.0	13:14:25		44.0	44.0
43.2	13:14:26		43.2	43.2
43.2	13:14:27		43.2	43.2
44.6	13:14:28		44.6	44.6
46.0	13:14:29		46.0	46.0
46.3	13:14:30		46.3	46.3
45.3	13:14:31		45.3	45.3
47.4	13:14:32		47.4	47.4
48.4	13:14:33		48.4	48.4
51.1	13:14:34		51.1	51.1
56.0	13:14:35		56.0	56.0
64.5	13:14:36		64.5	64.5
69.7	13:14:37		69.7	69.7

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
59.7	13:26:19		59.7	59.7
57.2	13:26:20		57.2	57.2
55.2	13:26:21		55.2	55.2
53.8	13:26:22		53.8	53.8
53.3	13:26:23		53.3	53.3
53.0	13:26:24		53.0	53.0
52.1	13:26:25		52.1	52.1
52.1	13:26:26		52.1	52.1
51.3	13:26:27		51.3	51.3
50.9	13:26:28		50.9	50.9
50.6	13:26:29		50.6	50.6
50.7	13:26:30		50.7	50.7
51.7	13:26:31		51.7	51.7
52.8	13:26:32		52.8	52.8
53.3	13:26:33		53.3	53.3
52.7	13:26:34		52.7	52.7
52.3	13:26:35		52.3	52.3
51.7	13:26:36		51.7	51.7
50.7	13:26:37		50.7	50.7
50.3	13:26:38		50.3	50.3
51.1	13:26:39		51.1	51.1
50.7	13:26:40		50.7	50.7
52.6	13:26:41		52.6	52.6
52.5	13:26:42		52.5	52.5
52.3	13:26:43		52.3	52.3
53.5	13:26:44		53.5	53.5
53.1	13:26:45		53.1	53.1
51.9	13:26:46		51.9	51.9
51.2	13:26:47		51.2	51.2
51.0	13:26:48		51.0	51.0
50.9	13:26:49		50.9	50.9
51.4	13:26:50		51.4	51.4
52.2	13:26:51		52.2	52.2
51.2	13:26:52		51.2	51.2
50.4	13:26:53		50.4	50.4
52.2	13:26:54		52.2	52.2
51.2	13:26:55		51.2	51.2
51.2	13:26:56		51.2	51.2
51.3	13:26:57		51.3	51.3
51.5	13:26:58		51.5	51.5
53.5	13:26:59		53.5	53.5
53.3	13:27:00		53.3	53.3
53.9	13:27:01		53.9	53.9
54.0	13:27:02		54.0	54.0
53.9	13:27:03		53.9	53.9
53.9	13:27:04		53.9	53.9
52.5	13:27:05		52.5	52.5
52.1	13:27:06		52.1	52.1
51.2	13:27:07		51.2	51.2
51.6	13:27:08		51.6	51.6
51.8	13:27:09		51.8	51.8
53.6	13:27:10		53.6	53.6
58.3	13:27:11		58.3	58.3
67.0	13:27:12		67.0	67.0
70.9	13:27:13		70.9	70.9
68.9	13:27:14		68.9	68.9
65.3	13:27:15		65.3	65.3
61.4	13:27:16		61.4	61.4
57.8	13:27:17		57.8	57.8
54.9	13:27:18		54.9	54.9
53.8	13:27:19		53.8	53.8
53.8	13:27:20		53.8	53.8
54.9	13:27:21		54.9	54.9
59.9	13:27:22		59.9	59.9
72.4	13:27:23		72.4	72.4
76.7	13:27:24		76.7	76.7
74.1	13:27:25		74.1	74.1
70.3	13:27:26		70.3	70.3
66.3	13:27:27		66.3	66.3
62.7	13:27:28		62.7	62.7
59.8	13:27:29		59.8	59.8
57.0	13:27:30		57.0	57.0
55.2	13:27:31		55.2	55.2
54.1	13:27:32		54.1	54.1
52.7	13:27:33		52.7	52.7
52.5	13:27:34		52.5	52.5
51.5	13:27:35		51.5	51.5
51.0	13:27:36		51.0	51.0
49.9	13:27:37		49.9	49.9
50.5	13:27:38		50.5	50.5
50.7	13:27:39		50.7	50.7
50.1	13:27:40		50.1	50.1
49.8	13:27:41		49.8	49.8
50.9	13:27:42		50.9	50.9
49.9	13:27:43		49.9	49.9
49.1	13:27:44		49.1	49.1
50.1	13:27:45		50.1	50.1
52.2	13:27:46		52.2	52.2
52.7	13:27:47		52.7	52.7
51.4	13:27:48		51.4	51.4
49.6	13:27:49		49.6	49.6
49.5	13:27:50		49.5	49.5
50.9	13:27:51		50.9	50.9
50.1	13:27:52		50.1	50.1
49.4	13:27:53		49.4	49.4
49.2	13:27:54		49.2	49.2
51.8	13:27:55		51.8	51.8
52.6	13:27:56		52.6	52.6
51.8	13:27:57		51.8	51.8
52.3	13:27:58		52.3	52.3
51.8	13:27:59		51.8	51.8
51.3	13:28:00		51.3	51.3
51.7	13:28:01		51.7	51.7
52.4	13:28:02		52.4	52.4
51.3	13:28:03		51.3	51.3
51.6	13:28:04		51.6	51.6
51.6	13:28:05		51.6	51.6
50.5	13:28:06		50.5	50.5
50.6	13:28:07		50.6	50.6
50.9	13:28:08		50.9	50.9
51.3	13:28:09		51.3	51.3
53.4	13:28:10		53.4	53.4
53.1	13:28:11		53.1	53.1
52.6	13:28:12		52.6	52.6
53.5	13:28:13		53.5	53.5
53.5	13:28:14		53.5	53.5
52.9	13:28:15		52.9	52.9
52.6	13:28:16		52.6	52.6
51.7	13:28:17		51.7	51.7
50.0	13:28:18		50.0	50.0
48.9	13:28:19		48.9	48.9
48.9	13:28:20		48.9	48.9
49.4	13:28:21		49.4	49.4
49.8	13:28:22		49.8	49.8
48.6	13:28:23		48.6	48.6
48.3	13:28:24		48.3	48.3
50.2	13:28:25		50.2	50.2
49.9	13:28:26		49.9	49.9
50.2	13:28:27		50.2	50.2
50.9	13:28:28		50.9	50.9
50.5	13:28:29		50.5	50.5
50.2	13:28:30		50.2	50.2
52.6	13:28:31		52.6	52.6
52.8	13:28:32		52.8	52.8
51.2	13:28:33		51.2	51.2
50.5	13:28:34		50.5	50.5
51.0	13:28:35		51.0	51.0
51.1	13:28:36		51.1	51.1
51.9	13:28:37		51.9	51.9
53.3	13:28:38		53.3	53.3
52.0	13:28:39		52.0	52.0
50.1	13:28:40		50.1	50.1
49.5	13:28:41		49.5	49.5
49.4	13:28:42		49.4	49.4
49.3	13:28:43		49.3	49.3
50.4	13:28:44		50.4	50.4
50.2	13:28:45		50.2	50.2
51.3	13:28:46		51.3	51.3
51.3	13:28:47		51.3	51.3
51.0	13:28:48		51.0	51.0
50.6	13:28:49		50.6	50.6
51.0	13:28:50		51.0	51.0
50.1	13:28:51		50.1	50.1
51.1	13:28:52		51.1	51.1
55.0	13:28:53		55.0	55.0
55.5	13:28:54		55.5	55.5
52.9	13:28:55		52.9	52.9
51.8	13:28:56		51.8	51.8
52.0	13:28:57		52.0	52.0
51.9	13:28:58		51.9	51.9
51.9	13:28:59		51.9	51.9
51.4	13:29:00		51.4	51.4

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
39.3	13:32:50		39.3	39.3
40.2	13:32:51		40.2	40.2
38.7	13:32:52		38.7	38.7
38.3	13:32:53		38.3	38.3
38.1	13:32:54		38.1	38.1
39.3	13:32:55		39.3	39.3
40.5	13:32:56		40.5	40.5
41.5	13:32:57		41.5	41.5
41.0	13:32:58		41.0	41.0
41.0	13:32:59		41.0	41.0
39.3	13:33:00		39.3	39.3
38.4	13:33:01		38.4	38.4
38.6	13:33:02		38.6	38.6
38.2	13:33:03		38.2	38.2
37.9	13:33:04		37.9	37.9
38.5	13:33:05		38.5	38.5
40.6	13:33:06		40.6	40.6
45.9	13:33:07		45.9	45.9
49.6	13:33:08		49.6	49.6
50.6	13:33:09		50.6	50.6
51.0	13:33:10		51.0	51.0
49.4	13:33:11		49.4	49.4
48.9	13:33:12		48.9	48.9
47.4	13:33:13		47.4	47.4
46.8	13:33:14		46.8	46.8
45.9	13:33:15		45.9	45.9
46.4	13:33:16		46.4	46.4
47.7	13:33:17		47.7	47.7
47.0	13:33:18		47.0	47.0
48.7	13:33:19		48.7	48.7
51.2	13:33:20		51.2	51.2
51.3	13:33:21		51.3	51.3
50.5	13:33:22		50.5	50.5
49.2	13:33:23		49.2	49.2
47.4	13:33:24		47.4	47.4
45.1	13:33:25		45.1	45.1
43.5	13:33:26		43.5	43.5
42.9	13:33:27		42.9	42.9
41.0	13:33:28		41.0	41.0
40.9	13:33:29		40.9	40.9
39.8	13:33:30		39.8	39.8
38.5	13:33:31		38.5	38.5
40.1	13:33:32		40.1	40.1
41.9	13:33:33		41.9	41.9
42.6	13:33:34		42.6	42.6
42.1	13:33:35		42.1	42.1
40.4	13:33:36		40.4	40.4
40.1	13:33:37		40.1	40.1
40.9	13:33:38		40.9	40.9
41.0	13:33:39		41.0	41.0
42.8	13:33:40		42.8	42.8
43.2	13:33:41		43.2	43.2
44.6	13:33:42		44.6	44.6
46.7	13:33:43		46.7	46.7
46.3	13:33:44		46.3	46.3
46.1	13:33:45		46.1	46.1
44.0	13:33:46		44.0	44.0
42.6	13:33:47		42.6	42.6
42.6	13:33:48		42.6	42.6
43.3	13:33:49		43.3	43.3
42.8	13:33:50		42.8	42.8
43.0	13:33:51		43.0	43.0
41.2	13:33:52		41.2	41.2
41.4	13:33:53		41.4	41.4
43.1	13:33:54		43.1	43.1
43.1	13:33:55		43.1	43.1
42.7	13:33:56		42.7	42.7
40.6	13:33:57		40.6	40.6
40.9	13:33:58		40.9	40.9
39.3	13:33:59		39.3	39.3
38.9	13:34:00		38.9	38.9
40.9	13:34:01		40.9	40.9
42.5	13:34:02		42.5	42.5
42.7	13:34:03		42.7	42.7
43.3	13:34:04		43.3	43.3
45.8	13:34:05		45.8	45.8
45.8	13:34:06		45.8	45.8
44.9	13:34:07		44.9	44.9
45.4	13:34:08		45.4	45.4
46.0	13:34:09		46.0	46.0
44.4	13:34:10		44.4	44.4
42.4	13:34:11		42.4	42.4
40.7	13:34:12		40.7	40.7
40.5	13:34:13		40.5	40.5
39.9	13:34:14		39.9	39.9
41.7	13:34:15		41.7	41.7
41.4	13:34:16		41.4	41.4
41.2	13:34:17		41.2	41.2
40.1	13:34:18		40.1	40.1
39.0	13:34:19		39.0	39.0
39.4	13:34:20		39.4	39.4
40.5	13:34:21		40.5	40.5
42.2	13:34:22		42.2	42.2
42.7	13:34:23		42.7	42.7
41.6	13:34:24		41.6	41.6
41.8	13:34:25		41.8	41.8
45.7	13:34:26		45.7	45.7
45.4	13:34:27		45.4	45.4
45.1	13:34:28		45.1	45.1
43.8	13:34:29		43.8	43.8
43.5	13:34:30		43.5	43.5
45.1	13:34:31		45.1	45.1
46.4	13:34:32		46.4	46.4
44.3	13:34:33		44.3	44.3
43.3	13:34:34		43.3	43.3
43.7	13:34:35		43.7	43.7
45.2	13:34:36		45.2	45.2
44.6	13:34:37		44.6	44.6
43.5	13:34:38		43.5	43.5
42.2	13:34:39		42.2	42.2
40.0	13:34:40		40.0	40.0
45.0	13:34:41		45.0	45.0
46.8	13:34:42		46.8	46.8
48.1	13:34:43		48.1	48.1
46.6	13:34:44		46.6	46.6
44.4	13:34:45		44.4	44.4
44.0	13:34:46		44.0	44.0
46.6	13:34:47		46.6	46.6
45.5	13:34:48		45.5	45.5
43.7	13:34:49		43.7	43.7
41.7	13:34:50		41.7	41.7
40.8	13:34:51		40.8	40.8
41.5	13:34:52		41.5	41.5
40.9	13:34:53		40.9	40.9
40.2	13:34:54		40.2	40.2
42.1	13:34:55		42.1	42.1
42.7	13:34:56		42.7	42.7
44.0	13:34:57		44.0	44.0
45.0	13:34:58		45.0	45.0
54.9	13:34:59		54.9	54.9
54.5	13:35:00		54.5	54.5
51.2	13:35:01		51.2	51.2
49.7	13:35:02		49.7	49.7
49.6	13:35:03		49.6	49.6
48.8	13:35:04		48.8	48.8
48.6	13:35:05		48.6	48.6
49.0	13:35:06		49.0	49.0
49.0	13:35:07		49.0	49.0
48.1	13:35:08		48.1	48.1
52.4	13:35:09		52.4	52.4
55.5	13:35:10		55.5	55.5
53.2	13:35:11		53.2	53.2
50.4	13:35:12		50.4	50.4
47.7	13:35:13		47.7	47.7
47.0	13:35:14		47.0	47.0
47.6	13:35:15		47.6	47.6
53.3	13:35:16		53.3	53.3
61.2	13:35:17		61.2	61.2
59.3	13:35:18		59.3	59.3
56.3	13:35:19		56.3	56.3
54.2	13:35:20		54.2	54.2
51.6	13:35:21		51.6	51.6
49.0	13:35:22		49.0	49.0
46.8	13:35:23		46.8	46.8
45.9	13:35:24		45.9	45.9
46.1	13:35:25		46.1	46.1
49.9	13:35:26		49.9	49.9
54.4	13:35:27		54.4	54.4
51.4	13:35:28		51.4	51.4
48.1	13:35:29		48.1	48.1
46.7	13:35:30		46.7	46.7
45.6	13:35:31		45.6	45.6

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
69.3	13:14:38		69.3	69.3
66.1	13:14:39		66.1	66.1
62.5	13:14:40		62.5	62.5
59.1	13:14:41		59.1	59.1
56.2	13:14:42		56.2	56.2
53.3	13:14:43		53.3	53.3
50.9	13:14:44		50.9	50.9
51.7	13:14:45		51.7	51.7
55.7	13:14:46		55.7	55.7
61.2	13:14:47		61.2	61.2
69.4	13:14:48		69.4	69.4
74.2	13:14:49		74.2	74.2
78.4	13:14:50		78.4	78.4
78.5	13:14:51		78.5	78.5
75.2	13:14:52		75.2	75.2
71.5	13:14:53		71.5	71.5
67.7	13:14:54		67.7	67.7
64.0	13:14:55		64.0	64.0
60.8	13:14:56		60.8	60.8
59.6	13:14:57		59.6	59.6
63.3	13:14:58		63.3	63.3
71.3	13:14:59		71.3	71.3
74.7	13:15:00		74.7	74.7
72.8	13:15:01		72.8	72.8
69.0	13:15:02		69.0	69.0
65.0	13:15:03		65.0	65.0
61.2	13:15:04		61.2	61.2
57.4	13:15:05		57.4	57.4
53.7	13:15:06		53.7	53.7
50.5	13:15:07		50.5	50.5
48.0	13:15:08		48.0	48.0
47.0	13:15:09		47.0	47.0
45.8	13:15:10		45.8	45.8
45.4	13:15:11		45.4	45.4
49.5	13:15:12		49.5	49.5
50.5	13:15:13		50.5	50.5
48.3	13:15:14		48.3	48.3
46.7	13:15:15		46.7	46.7
45.5	13:15:16		45.5	45.5
46.1	13:15:17		46.1	46.1
47.6	13:15:18		47.6	47.6
49.2	13:15:19		49.2	49.2
57.8	13:15:20		57.8	57.8
59.6	13:15:21		59.6	59.6
60.4	13:15:22		60.4	60.4
64.3	13:15:23		64.3	64.3
68.8	13:15:24		68.8	68.8
70.1	13:15:25		70.1	70.1
67.3	13:15:26		67.3	67.3
63.5	13:15:27		63.5	63.5
59.7	13:15:28		59.7	59.7
56.2	13:15:29		56.2	56.2
53.4	13:15:30		53.4	53.4
52.2	13:15:31		52.2	52.2
51.6	13:15:32		51.6	51.6
54.3	13:15:33		54.3	54.3
57.3	13:15:34		57.3	57.3
61.7	13:15:35		61.7	61.7
69.8	13:15:36		69.8	69.8
74.7	13:15:37		74.7	74.7
73.2	13:15:38		73.2	73.2
69.4	13:15:39		69.4	69.4
65.5	13:15:40		65.5	65.5
61.8	13:15:41		61.8	61.8
58.1	13:15:42		58.1	58.1
55.1	13:15:43		55.1	55.1
52.6	13:15:44		52.6	52.6
51.2	13:15:45		51.2	51.2
52.1	13:15:46		52.1	52.1
57.8	13:15:47		57.8	57.8
59.0	13:15:48		59.0	59.0
55.4	13:15:49		55.4	55.4
52.1	13:15:50		52.1	52.1
49.8	13:15:51		49.8	49.8
48.7	13:15:52		48.7	48.7
49.3	13:15:53		49.3	49.3
50.7	13:15:54		50.7	50.7
51.3	13:15:55		51.3	51.3
49.6	13:15:56		49.6	49.6
48.3	13:15:57		48.3	48.3
47.9	13:15:58		47.9	47.9
47.7	13:15:59		47.7	47.7
48.0	13:16:00		48.0	48.0
48.4	13:16:01		48.4	48.4
48.4	13:16:02		48.4	48.4
47.6	13:16:03		47.6	47.6
47.1	13:16:04		47.1	47.1
47.1	13:16:05		47.1	47.1
47.4	13:16:06		47.4	47.4
49.3	13:16:07		49.3	49.3
49.5	13:16:08		49.5	49.5
48.4	13:16:09		48.4	48.4
48.5	13:16:10		48.5	48.5
49.4	13:16:11		49.4	49.4
48.6	13:16:12		48.6	48.6
49.6	13:16:13		49.6	49.6
49.6	13:16:14		49.6	49.6
51.7	13:16:15		51.7	51.7
50.5	13:16:16		50.5	50.5
47.8	13:16:17		47.8	47.8
46.3	13:16:18		46.3	46.3
46.7	13:16:19		46.7	46.7
50.3	13:16:20		50.3	50.3
48.0	13:16:21		48.0	48.0
46.4	13:16:22		46.4	46.4
45.0	13:16:23		45.0	45.0
43.6	13:16:24		43.6	43.6
47.8	13:16:25		47.8	47.8
47.1	13:16:26		47.1	47.1
45.5	13:16:27		45.5	45.5
44.6	13:16:28		44.6	44.6
44.3	13:16:29		44.3	44.3
46.9	13:16:30		46.9	46.9
50.5	13:16:31		50.5	50.5
51.1	13:16:32		51.1	51.1
48.2	13:16:33		48.2	48.2
45.6	13:16:34		45.6	45.6
46.1	13:16:35		46.1	46.1
45.3	13:16:36		45.3	45.3
44.0	13:16:37		44.0	44.0
43.4	13:16:38		43.4	43.4
43.4	13:16:39		43.4	43.4
43.8	13:16:40		43.8	43.8
46.6	13:16:41		46.6	46.6
45.7	13:16:42		45.7	45.7
45.4	13:16:43		45.4	45.4
46.7	13:16:44		46.7	46.7
48.4	13:16:45		48.4	48.4
55.0	13:16:46		55.0	55.0
62.4	13:16:47		62.4	62.4
69.5	13:16:48		69.5	69.5
74.5	13:16:49		74.5	74.5
73.8	13:16:50		73.8	73.8
70.0	13:16:51		70.0	70.0
66.2	13:16:52		66.2	66.2
62.4	13:16:53		62.4	62.4
59.3	13:16:54		59.3	59.3
55.4	13:16:55		55.4	55.4
52.0	13:16:56		52.0	52.0
49.2	13:16:57		49.2	49.2
47.7	13:16:58		47.7	47.7
49.8	13:16:59		49.8	49.8
48.9	13:17:00		48.9	48.9
47.9	13:17:01		47.9	47.9
48.2	13:17:02		48.2	48.2
50.1	13:17:03		50.1	50.1
56.5	13:17:04		56.5	56.5
62.7	13:17:05		62.7	62.7
68.9	13:17:06		68.9	68.9
72.9	13:17:07		72.9	72.9
70.9	13:17:08		70.9	70.9
66.9	13:17:09		66.9	66.9
62.9	13:17:10		62.9	62.9
59.0	13:17:11		59.0	59.0
55.3	13:17:12		55.3	55.3
52.5	13:17:13		52.5	52.5
50.4	13:17:14		50.4	50.4
51.6	13:17:15		51.6	51.6
49.7	13:17:16		49.7	49.7
48.6	13:17:17		48.6	48.6
48.7	13:17:18		48.7	48.7
49.1	13:17:19		49.1	49.1

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
50.7	13:29:01		50.7	50.7
49.7	13:29:02		49.7	49.7
49.4	13:29:03		49.4	49.4
50.0	13:29:04		50.0	50.0
51.5	13:29:05		51.5	51.5
53.1	13:29:06		53.1	53.1
51.1	13:29:07		51.1	51.1
49.8	13:29:08		49.8	49.8
50.8	13:29:09		50.8	50.8
50.6	13:29:10		50.6	50.6
49.4	13:29:11		49.4	49.4
50.3	13:29:12		50.3	50.3
52.9	13:29:13		52.9	52.9
51.8	13:29:14		51.8	51.8
50.9	13:29:15		50.9	50.9
50.6	13:29:16		50.6	50.6
50.5	13:29:17		50.5	50.5
51.8	13:29:18		51.8	51.8
52.4	13:29:19		52.4	52.4
52.5	13:29:20		52.5	52.5
54.4	13:29:21		54.4	54.4
52.9	13:29:22		52.9	52.9
52.2	13:29:23		52.2	52.2
50.9	13:29:24		50.9	50.9
51.0	13:29:25		51.0	51.0
52.4	13:29:26		52.4	52.4
51.5	13:29:27		51.5	51.5
50.9	13:29:28		50.9	50.9
52.5	13:29:29		52.5	52.5
53.8	13:29:30		53.8	53.8
55.9	13:29:31		55.9	55.9
57.8	13:29:32		57.8	57.8
64.2	13:29:33		64.2	64.2
71.5	13:29:34		71.5	71.5
73.5	13:29:35		73.5	73.5
71.0	13:29:36		71.0	71.0
67.2	13:29:37		67.2	67.2
63.3	13:29:38		63.3	63.3
59.5	13:29:39		59.5	59.5
57.0	13:29:40		57.0	57.0
54.4	13:29:41		54.4	54.4
52.8	13:29:42		52.8	52.8
52.7	13:29:43		52.7	52.7
52.7	13:29:44		52.7	52.7
51.2	13:29:45		51.2	51.2
49.6	13:29:46		49.6	49.6
48.3	13:29:47		48.3	48.3
48.0	13:29:48		48.0	48.0
50.5	13:29:49		50.5	50.5
50.0	13:29:50		50.0	50.0
49.9	13:29:51		49.9	49.9
49.2	13:29:52		49.2	49.2
49.3	13:29:53		49.3	49.3
50.2	13:29:54		50.2	50.2
50.4	13:29:55		50.4	50.4
50.4	13:29:56		50.4	50.4
49.9	13:29:57		49.9	49.9
51.0	13:29:58		51.0	51.0
51.3	13:29:59		51.3	51.3
51.0	13:30:00		51.0	51.0
49.4	13:30:01		49.4	49.4
49.8	13:30:02		49.8	49.8
50.6	13:30:03		50.6	50.6
52.1	13:30:04		52.1	52.1
52.4	13:30:05		52.4	52.4
51.1	13:30:06		51.1	51.1
51.1	13:30:07		51.1	51.1
51.7	13:30:08		51.7	51.7
52.2	13:30:09		52.2	52.2
52.4	13:30:10		52.4	52.4
51.7	13:30:11		51.7	51.7
51.8	13:30:12		51.8	51.8
51.7	13:30:13		51.7	51.7
52.7	13:30:14		52.7	52.7
54.3	13:30:15		54.3	54.3
52.9	13:30:16		52.9	52.9
53.0	13:30:17		53.0	53.0
53.4	13:30:18		53.4	53.4
52.2	13:30:19		52.2	52.2
51.1	13:30:20		51.1	51.1
51.3	13:30:21		51.3	51.3
51.3	13:30:22		51.3	51.3
51.5	13:30:23		51.5	51.5
53.1	13:30:24		53.1	53.1
52.5	13:30:25		52.5	52.5
51.8	13:30:26		51.8	51.8
51.6	13:30:27		51.6	51.6
52.4	13:30:28		52.4	52.4
51.1	13:30:29		51.1	51.1
51.3	13:30:30		51.3	51.3
52.1	13:30:31		52.1	52.1
53.0	13:30:32		53.0	53.0
52.4	13:30:33		52.4	52.4
52.2	13:30:34		52.2	52.2
52.8	13:30:35		52.8	52.8
52.4	13:30:36		52.4	52.4
52.3	13:30:37		52.3	52.3
52.7	13:30:38		52.7	52.7
52.6	13:30:39		52.6	52.6
51.0	13:30:40		51.0	51.0
50.9	13:30:41		50.9	50.9
51.2	13:30:42		51.2	51.2
51.2	13:30:43		51.2	51.2
53.0	13:30:44		53.0	53.0
53.1	13:30:45		53.1	53.1
52.3	13:30:46		52.3	52.3
56.3	13:30:47		56.3	56.3
56.2	13:30:48		56.2	56.2
54.3	13:30:49		54.3	54.3
53.7	13:30:50		53.7	53.7
53.8	13:30:51		53.8	53.8
54.6	13:30:52		54.6	54.6
53.0	13:30:53		53.0	53.0
52.4	13:30:54		52.4	52.4
52.8	13:30:55		52.8	52.8
52.6	13:30:56		52.6	52.6
52.6	13:30:57		52.6	52.6
52.2	13:30:58		52.2	52.2
51.9	13:30:59		51.9	51.9
52.1	13:31:00		52.1	52.1
52.5	13:31:01		52.5	52.5
53.2	13:31:02		53.2	53.2
54.4	13:31:03		54.4	54.4
56.3	13:31:04		56.3	56.3
56.7	13:31:05		56.7	56.7
55.4	13:31:06		55.4	55.4
53.6	13:31:07		53.6	53.6
52.7	13:31:08		52.7	52.7
52.9	13:31:09		52.9	52.9
53.2	13:31:10		53.2	53.2
53.8	13:31:11		53.8	53.8
52.1	13:31:12		52.1	52.1
51.0	13:31:13		51.0	51.0
52.2	13:31:14		52.2	52.2
52.9	13:31:15		52.9	52.9
52.0	13:31:16		52.0	52.0
52.6	13:31:17		52.6	52.6
54.8	13:31:18		54.8	54.8
54.9	13:31:19		54.9	54.9
53.7	13:31:20		53.7	53.7
52.4	13:31:21		52.4	52.4
51.4	13:31:22		51.4	51.4
51.5	13:31:23		51.5	51.5
52.1	13:31:24		52.1	52.1
53.9	13:31:25		53.9	53.9
53.0	13:31:26		53.0	53.0
51.7	13:31:27		51.7	51.7
51.7	13:31:28		51.7	51.7
51.9	13:31:29		51.9	51.9
52.0	13:31:30		52.0	52.0
51.7	13:31:31		51.7	51.7
52.6	13:31:32		52.6	52.6
52.2	13:31:33		52.2	52.2
53.0	13:31:34		53.0	53.0
52.7	13:31:35		52.7	52.7
53.3	13:31:36		53.3	53.3
52.8	13:31:37		52.8	52.8
51.4	13:31:38		51.4	51.4
52.0	13:31:39		52.0	52.0
53.6	13:31:40		53.6	53.6
54.1	13:31:41		54.1	54.1
54.6	13:31:42		54.6	54.6

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
43.6	13:35:32		43.6	43.6
42.1	13:35:33		42.1	42.1
42.9	13:35:34		42.9	42.9
42.0	13:35:35		42.0	42.0
41.9	13:35:36		41.9	41.9
43.1	13:35:37		43.1	43.1
46.8	13:35:38		46.8	46.8
54.9	13:35:39		54.9	54.9
53.1	13:35:40		53.1	53.1
49.4	13:35:41		49.4	49.4
46.3	13:35:42		46.3	46.3
47.0	13:35:43		47.0	47.0
46.8	13:35:44		46.8	46.8
47.3	13:35:45		47.3	47.3
48.2	13:35:46		48.2	48.2
48.8	13:35:47		48.8	48.8
49.6	13:35:48		49.6	49.6
48.4	13:35:49		48.4	48.4
46.6	13:35:50		46.6	46.6
46.1	13:35:51		46.1	46.1
45.6	13:35:52		45.6	45.6
44.6	13:35:53		44.6	44.6
43.1	13:35:54		43.1	43.1
42.0	13:35:55		42.0	42.0
41.9	13:35:56		41.9	41.9
41.2	13:35:57		41.2	41.2
41.1	13:35:58		41.1	41.1
43.7	13:35:59		43.7	43.7
45.4	13:36:00		45.4	45.4
43.8	13:36:01		43.8	43.8
43.3	13:36:02		43.3	43.3
43.4	13:36:03		43.4	43.4
45.9	13:36:04		45.9	45.9
47.6	13:36:05		47.6	47.6
47.6	13:36:06		47.6	47.6
48.5	13:36:07		48.5	48.5
46.9	13:36:08		46.9	46.9
44.5	13:36:09		44.5	44.5
43.4	13:36:10		43.4	43.4
41.2	13:36:11		41.2	41.2
40.3	13:36:12		40.3	40.3
40.5	13:36:13		40.5	40.5
42.5	13:36:14		42.5	42.5
42.9	13:36:15		42.9	42.9
43.3	13:36:16		43.3	43.3
42.2	13:36:17		42.2	42.2
41.6	13:36:18		41.6	41.6
41.8	13:36:19		41.8	41.8
40.9	13:36:20		40.9	40.9
39.1	13:36:21		39.1	39.1
39.6	13:36:22		39.6	39.6
40.5	13:36:23		40.5	40.5
40.4	13:36:24		40.4	40.4
40.3	13:36:25		40.3	40.3
40.0	13:36:26		40.0	40.0
40.6	13:36:27		40.6	40.6
40.8	13:36:28		40.8	40.8
40.8	13:36:29		40.8	40.8
40.4	13:36:30		40.4	40.4
40.2	13:36:31		40.2	40.2
41.1	13:36:32		41.1	41.1
46.7	13:36:33		46.7	46.7
45.2	13:36:34		45.2	45.2
43.6	13:36:35		43.6	43.6
46.3	13:36:36		46.3	46.3
49.1	13:36:37		49.1	49.1
47.7	13:36:38		47.7	47.7
44.6	13:36:39		44.6	44.6
43.5	13:36:40		43.5	43.5
44.1	13:36:41		44.1	44.1
42.0	13:36:42		42.0	42.0
41.4	13:36:43		41.4	41.4
42.9	13:36:44		42.9	42.9
43.4	13:36:45		43.4	43.4
41.7	13:36:46		41.7	41.7
41.2	13:36:47		41.2	41.2
44.3	13:36:48		44.3	44.3
43.9	13:36:49		43.9	43.9
41.9	13:36:50		41.9	41.9
41.3	13:36:51		41.3	41.3
41.7	13:36:52		41.7	41.7
43.4	13:36:53		43.4	43.4
43.7	13:36:54		43.7	43.7
43.1	13:36:55		43.1	43.1
43.2	13:36:56		43.2	43.2
41.8	13:36:57		41.8	41.8
41.6	13:36:58		41.6	41.6
41.9	13:36:59		41.9	41.9
41.1	13:37:00		41.1	41.1
40.7	13:37:01		40.7	40.7
40.7	13:37:02		40.7	40.7
41.1	13:37:03		41.1	41.1
41.0	13:37:04		41.0	41.0
40.9	13:37:05		40.9	40.9
41.8	13:37:06		41.8	41.8
41.7	13:37:07		41.7	41.7
42.1	13:37:08		42.1	42.1
45.9	13:37:09		45.9	45.9
45.5	13:37:10		45.5	45.5
47.2	13:37:11		47.2	47.2
45.4	13:37:12		45.4	45.4
44.7	13:37:13		44.7	44.7
46.5	13:37:14		46.5	46.5
46.6	13:37:15		46.6	46.6
43.8	13:37:16		43.8	43.8
43.9	13:37:17		43.9	43.9
44.6	13:37:18		44.6	44.6
45.7	13:37:19		45.7	45.7
45.7	13:37:20		45.7	45.7
45.5	13:37:21		45.5	45.5
45.9	13:37:22		45.9	45.9
44.5	13:37:23		44.5	44.5
43.6	13:37:24		43.6	43.6
42.3	13:37:25		42.3	42.3
42.1	13:37:26		42.1	42.1
43.4	13:37:27		43.4	43.4
42.3	13:37:28		42.3	42.3
41.3	13:37:29		41.3	41.3
40.5	13:37:30		40.5	40.5
41.0	13:37:31		41.0	41.0
40.7	13:37:32		40.7	40.7
40.1	13:37:33		40.1	40.1
42.1	13:37:34		42.1	42.1
42.9	13:37:35		42.9	42.9
43.3	13:37:36		43.3	43.3
43.7	13:37:37		43.7	43.7
43.3	13:37:38		43.3	43.3
42.7	13:37:39		42.7	42.7
42.0	13:37:40		42.0	42.0
42.0	13:37:41		42.0	42.0
43.1	13:37:42		43.1	43.1
45.3	13:37:43		45.3	45.3
46.5	13:37:44		46.5	46.5
45.4	13:37:45		45.4	45.4
44.5	13:37:46		44.5	44.5
45.4	13:37:47		45.4	45.4
47.4	13:37:48		47.4	47.4
46.5	13:37:49		46.5	46.5
48.3	13:37:50		48.3	48.3
52.2	13:37:51		52.2	52.2
50.9	13:37:52		50.9	50.9
49.3	13:37:53		49.3	49.3
47.5	13:37:54		47.5	47.5
45.4	13:37:55		45.4	45.4
43.3	13:37:56		43.3	43.3
44.8	13:37:57		44.8	44.8
43.4	13:37:58		43.4	43.4
41.2	13:37:59		41.2	41.2
40.6	13:38:00		40.6	40.6
40.8	13:38:01		40.8	40.8
39.7	13:38:02		39.7	39.7
40.1	13:38:03		40.1	40.1
40.4	13:38:04		40.4	40.4
40.8	13:38:05		40.8	40.8
40.1	13:38:06		40.1	40.1
40.7	13:38:07		40.7	40.7
41.3	13:38:08		41.3	41.3
41.5	13:38:09		41.5	41.5
43.0	13:38:10		43.0	43.0
42.8	13:38:11		42.8	42.8
42.7	13:38:12		42.7	42.7
43.8	13:38:13		43.8	43.8

Site 1 - Near Southeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
50.2	13:17:20		50.2	50.2
51.2	13:17:21		51.2	51.2
48.9	13:17:22		48.9	48.9
47.4	13:17:23		47.4	47.4
47.9	13:17:24		47.9	47.9
47.1	13:17:25		47.1	47.1
46.8	13:17:26		46.8	46.8
49.4	13:17:27		49.4	49.4
49.1	13:17:28		49.1	49.1
50.7	13:17:29		50.7	50.7
48.8	13:17:30		48.8	48.8
47.6	13:17:31		47.6	47.6
47.1	13:17:32		47.1	47.1
52.3	13:17:33		52.3	52.3
50.6	13:17:34		50.6	50.6
48.2	13:17:35		48.2	48.2
49.2	13:17:36		49.2	49.2
48.8	13:17:37		48.8	48.8
47.1	13:17:38		47.1	47.1
46.3	13:17:39		46.3	46.3
46.5	13:17:40		46.5	46.5
45.8	13:17:41		45.8	45.8
46.2	13:17:42		46.2	46.2
52.6	13:17:43		52.6	52.6
51.4	13:17:44		51.4	51.4
49.3	13:17:45		49.3	49.3
48.0	13:17:46		48.0	48.0
47.3	13:17:47		47.3	47.3
46.8	13:17:48		46.8	46.8
49.8	13:17:49		49.8	49.8
49.4	13:17:50		49.4	49.4
49.5	13:17:51		49.5	49.5
52.0	13:17:52		52.0	52.0
55.8	13:17:53		55.8	55.8
59.8	13:17:54		59.8	59.8
62.4	13:17:55		62.4	62.4
68.6	13:17:56		68.6	68.6
71.2	13:17:57		71.2	71.2
69.1	13:17:58		69.1	69.1
65.3	13:17:59		65.3	65.3
61.4	13:18:00		61.4	61.4
57.4	13:18:01		57.4	57.4
53.9	13:18:02		53.9	53.9
50.8	13:18:03		50.8	50.8
48.6	13:18:04		48.6	48.6
47.5	13:18:05		47.5	47.5
47.4	13:18:06		47.4	47.4
48.1	13:18:07		48.1	48.1
50.5	13:18:08		50.5	50.5
55.6	13:18:09		55.6	55.6
61.0	13:18:10		61.0	61.0
68.4	13:18:11		68.4	68.4
70.9	13:18:12		70.9	70.9
68.8	13:18:13		68.8	68.8
65.4	13:18:14		65.4	65.4
62.1	13:18:15		62.1	62.1
59.3	13:18:16		59.3	59.3
56.5	13:18:17		56.5	56.5
53.5	13:18:18		53.5	53.5
51.3	13:18:19		51.3	51.3
51.1	13:18:20		51.1	51.1
50.4	13:18:21		50.4	50.4
49.4	13:18:22	62.2	49.4	49.4
48.7	13:18:23	62.2	48.7	48.7
48.3	13:18:24	62.2	48.3	48.3
50.6	13:18:25	62.2	50.6	50.6
50.9	13:18:26	62.2	50.9	50.9
51.0	13:18:27	62.2	51.0	51.0
49.8	13:18:28	62.2	49.8	49.8
47.7	13:18:29	62.2	47.7	47.7
46.9	13:18:30	62.2	46.9	46.9
46.8	13:18:31	62.2	46.8	46.8
47.2	13:18:32	62.2	47.2	47.2
51.7	13:18:33	62.2	51.7	51.7
50.5	13:18:34	62.2	50.5	50.5
53.2	13:18:35	62.2	53.2	53.2
54.2	13:18:36	62.2	54.2	54.2
51.2	13:18:37	62.2	51.2	51.2
49.6	13:18:38	62.2	49.6	49.6
49.2	13:18:39	62.2	49.2	49.2
50.0	13:18:40	62.2	50.0	50.0
52.8	13:18:41	62.2	52.8	52.8
56.9	13:18:42	62.2	56.9	56.9
58.8	13:18:43	62.2	58.8	58.8
60.6	13:18:44	62.2	60.6	60.6
63.2	13:18:45	62.2	63.2	63.2
68.9	13:18:46	62.2	68.9	68.9
72.2	13:18:47	62.2	72.2	72.2
72.9	13:18:48	62.2	72.9	72.9
70.6	13:18:49	62.2	70.6	70.6
67.6	13:18:50	62.2	67.6	67.6
64.1	13:18:51	62.2	64.1	64.1
60.5	13:18:52	62.2	60.5	60.5
57.3	13:18:53	62.2	57.3	57.3
54.1	13:18:54	62.2	54.1	54.1
51.6	13:18:55	62.2	51.6	51.6
49.3	13:18:56	62.2	49.3	49.3
48.3	13:18:57	62.2	48.3	48.3
48.4	13:18:58	62.2	48.4	48.4
49.6	13:18:59	62.2	49.6	49.6
46.5	13:19:00	62.2	46.5	46.5
44.6	13:19:01	62.2	44.6	44.6
47.4	13:19:02	62.1	47.4	47.4
49.6	13:19:03	62.1	49.6	49.6
47.1	13:19:04	62.1	47.1	47.1
45.1	13:19:05	62.1	45.1	45.1
43.8	13:19:06	62.1	43.8	43.8
42.7	13:19:07	62.1	42.7	42.7
41.5	13:19:08	62.1	41.5	41.5
41.4	13:19:09	62.1	41.4	41.4
43.2	13:19:10	62.1	43.2	43.2
43.9	13:19:11	62.1	43.9	43.9
42.5	13:19:12	62.1	42.5	42.5
44.4	13:19:13	62.1	44.4	44.4
48.5	13:19:14	62.1	48.5	48.5
49.4	13:19:15	62.1	49.4	49.4
48.2	13:19:16	62.1	48.2	48.2
48.5	13:19:17	62.1	48.5	48.5
47.5	13:19:18	62.1	47.5	47.5
46.6	13:19:19	62.1	46.6	46.6
46.9	13:19:20	62.1	46.9	46.9
47.2	13:19:21	62.1	47.2	47.2
48.9	13:19:22	62.1	48.9	48.9
48.1	13:19:23	62.1	48.1	48.1
47.4	13:19:24	62.1	47.4	47.4
48.0	13:19:25	62.1	48.0	48.0
49.7	13:19:26	62.1	49.7	49.7
50.3	13:19:27	62.1	50.3	50.3
50.1	13:19:28	62.1	50.1	50.1
50.5	13:19:29	62.1	50.5	50.5
50.6	13:19:30	62.1	50.6	50.6
50.1	13:19:31	62.1	50.1	50.1
50.0	13:19:32	62.1	50.0	50.0
49.6	13:19:33	62.1	49.6	49.6
50.6	13:19:34	62.1	50.6	50.6
51.0	13:19:35	62.1	51.0	51.0
50.0	13:19:36	62.1	50.0	50.0
50.0	13:19:37	62.0	50.0	50.0
49.9	13:19:38	62.0	49.9	49.9
49.7	13:19:39	62.0	49.7	49.7
50.1	13:19:40	62.1	50.1	50.1
49.7	13:19:41	62.1	49.7	49.7
49.8	13:19:42	62.1	49.8	49.8
49.4	13:19:43	62.1	49.4	49.4
48.3	13:19:44	62.1	48.3	48.3
48.1	13:19:45	62.1	48.1	48.1
48.6	13:19:46	62.1	48.6	48.6
50.8	13:19:47	62.1	50.8	50.8
53.0	13:19:48	62.1	53.0	53.0
55.0	13:19:49	62.1	55.0	55.0
60.1	13:19:50	62.1	60.1	60.1
68.2	13:19:51	62.1	68.2	68.2
71.3	13:19:52	62.0	71.3	71.3
69.5	13:19:53	62.0	69.5	69.5
66.2	13:19:54	62.0	66.2	66.2

Site 2 - Near Northeast Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
56.2	13:31:43		56.2	56.2
58.5	13:31:44		58.5	58.5
57.7	13:31:45		57.7	57.7
57.4	13:31:46		57.4	57.4
56.8	13:31:47		56.8	56.8
56.4	13:31:48		56.4	56.4
56.8	13:31:49		56.8	56.8
56.7	13:31:50		56.7	56.7
55.1	13:31:51		55.1	55.1
55.5	13:31:52		55.5	55.5
55.0	13:31:53		55.0	55.0
54.5	13:31:54		54.5	54.5
54.0	13:31:55		54.0	54.0
53.8	13:31:56		53.8	53.8
52.9	13:31:57		52.9	52.9
53.2	13:31:58		53.2	53.2
53.7	13:31:59		53.7	53.7
52.4	13:32:00		52.4	52.4
51.9	13:32:01		51.9	51.9
52.6	13:32:02		52.6	52.6
53.4	13:32:03		53.4	53.4
52.9	13:32:04		52.9	52.9
52.4	13:32:05		52.4	52.4
52.1	13:32:06		52.1	52.1
51.6	13:32:07		51.6	51.6
52.2	13:32:08		52.2	52.2
51.8	13:32:09		51.8	51.8
50.7	13:32:10		50.7	50.7
51.6	13:32:11		51.6	51.6
51.4	13:32:12		51.4	51.4
52.1	13:32:13		52.1	52.1
52.8	13:32:14		52.8	52.8
53.1	13:32:15		53.1	53.1
53.0	13:32:16		53.0	53.0
51.9	13:32:17		51.9	51.9
52.9	13:32:18		52.9	52.9
51.7	13:32:19		51.7	51.7
51.5	13:32:20		51.5	51.5
52.2	13:32:21		52.2	52.2
52.4	13:32:22		52.4	52.4
52.6	13:32:23		52.6	52.6
52.1	13:32:24		52.1	52.1
52.4	13:32:25		52.4	52.4
51.9	13:32:26		51.9	51.9
52.0	13:32:27		52.0	52.0
53.0	13:32:28		53.0	53.0
53.1	13:32:29		53.1	53.1
51.4	13:32:30		51.4	51.4
50.7	13:32:31		50.7	50.7
50.7	13:32:32		50.7	50.7
51.0	13:32:33		51.0	51.0
52.3	13:32:34		52.3	52.3
55.6	13:32:35		55.6	55.6
61.3	13:32:36		61.3	61.3
75.5	13:32:37		75.5	75.5
77.8	13:32:38		77.8	77.8
74.7	13:32:39		74.7	74.7
70.9	13:32:40		70.9	70.9
66.9	13:32:41		66.9	66.9
63.0	13:32:42		63.0	63.0
59.5	13:32:43		59.5	59.5
56.5	13:32:44		56.5	56.5
54.8	13:32:45	61.0	54.8	54.8
54.1	13:32:46	61.0	54.1	54.1
54.1	13:32:47	61.0	54.1	54.1
54.1	13:32:48	61.0	54.1	54.1
53.2	13:32:49	61.0	53.2	53.2
51.9	13:32:50	61.0	51.9	51.9
52.2	13:32:51	61.0	52.2	52.2
53.0	13:32:52	61.0	53.0	53.0
52.4	13:32:53	61.0	52.4	52.4
51.9	13:32:54	61.0	51.9	51.9
51.5	13:32:55	61.0	51.5	51.5
51.7	13:32:56	61.0	51.7	51.7
51.8	13:32:57	61.0	51.8	51.8
52.0	13:32:58	61.0	52.0	52.0
52.5	13:32:59	61.0	52.5	52.5
54.0	13:33:00	61.0	54.0	54.0
52.9	13:33:01	61.0	52.9	52.9
52.9	13:33:02	61.0	52.9	52.9
51.9	13:33:03	61.0	51.9	51.9
51.3	13:33:04	61.0	51.3	51.3
51.7	13:33:05	61.0	51.7	51.7
51.3	13:33:06	61.0	51.3	51.3
50.8	13:33:07	61.0	50.8	50.8
51.0	13:33:08	61.0	51.0	51.0
51.8	13:33:09	61.0	51.8	51.8
52.3	13:33:10	61.0	52.3	52.3
52.2	13:33:11	61.0	52.2	52.2
51.8	13:33:12	61.0	51.8	51.8
51.4	13:33:13	61.0	51.4	51.4
51.9	13:33:14	61.0	51.9	51.9
51.4	13:33:15	61.0	51.4	51.4
52.2	13:33:16	61.0	52.2	52.2
52.4	13:33:17	61.0	52.4	52.4
52.9	13:33:18	61.0	52.9	52.9
51.5	13:33:19	61.0	51.5	51.5
51.3	13:33:20	61.0	51.3	51.3
52.0	13:33:21	61.0	52.0	52.0
52.2	13:33:22	61.0	52.2	52.2
53.2	13:33:23	61.0	53.2	53.2
53.0	13:33:24	61.0	53.0	53.0
52.2	13:33:25	61.0	52.2	52.2
52.4	13:33:26	61.0	52.4	52.4
53.5	13:33:27	61.0	53.5	53.5
52.8	13:33:28	61.0	52.8	52.8
52.6	13:33:29	61.0	52.6	52.6
53.1	13:33:30	61.0	53.1	53.1
53.8	13:33:31	61.0	53.8	53.8
54.1	13:33:32	61.0	54.1	54.1
57.6	13:33:33	61.0	57.6	57.6
56.8	13:33:34	61.0	56.8	56.8
54.8	13:33:35	61.0	54.8	54.8
54.5	13:33:36	61.0	54.5	54.5
54.4	13:33:37	61.0	54.4	54.4
53.4	13:33:38	60.9	53.4	53.4
52.3	13:33:39	60.9	52.3	52.3
51.7	13:33:40	60.9	51.7	51.7
51.9	13:33:41	60.9	51.9	51.9
54.8	13:33:42	60.9	54.8	54.8
53.8	13:33:43	60.9	53.8	53.8
52.2	13:33:44	60.9	52.2	52.2
51.8	13:33:45	60.9	51.8	51.8
52.7	13:33:46	60.9	52.7	52.7
52.1	13:33:47	60.9	52.1	52.1
51.2	13:33:48	60.9	51.2	51.2
51.1	13:33:49	60.9	51.1	51.1
51.2	13:33:50	60.9	51.2	51.2
51.9	13:33:51	60.9	51.9	51.9
52.7	13:33:52	60.9	52.7	52.7
53.0	13:33:53	60.9	53.0	53.0
52.7	13:33:54	60.9	52.7	52.7
52.2	13:33:55	60.9	52.2	52.2
53.2	13:33:56	60.9	53.2	53.2
53.0	13:33:57	60.9	53.0	53.0
54.1	13:33:58	60.9	54.1	54.1
53.0	13:33:59	60.9	53.0	53.0
51.9	13:34:00	60.9	51.9	51.9
52.3	13:34:01	60.9	52.3	52.3
51.4	13:34:02	60.9	51.4	51.4
52.4	13:34:03	60.9	52.4	52.4
53.2	13:34:04	60.9	53.2	53.2
54.0	13:34:05	60.9	54.0	54.0
52.8	13:34:06	60.9	52.8	52.8
51.6	13:34:07	60.9	51.6	51.6
51.3	13:34:08	60.9	51.3	51.3
52.5	13:34:09	60.9	52.5	52.5
51.9	13:34:10	60.9	51.9	51.9
52.6	13:34:11	60.9	52.6	52.6
53.6	13:34:12	60.9	53.6	53.6
53.5	13:34:13	60.9	53.5	53.5
53.6	13:34:14	60.9	53.6	53.6
52.6	13:34:15	60.9	52.6	52.6
52.9	13:34:16	60.9	52.9	52.9
54.5	13:34:17	60.9	54.5	54.5

Site 3 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
42.8	13:38:14		42.8	42.8
41.2	13:38:15		41.2	41.2
40.7	13:38:16		40.7	40.7
40.5	13:38:17		40.5	40.5
40.4	13:38:18		40.4	40.4
42.5	13:38:19		42.5	42.5
43.9	13:38:20		43.9	43.9
44.2	13:38:21		44.2	44.2
44.2	13:38:22		44.2	44.2
45.3	13:38:23		45.3	45.3
43.5	13:38:24		43.5	43.5
41.0	13:38:25		41.0	41.0
40.1	13:38:26		40.1	40.1
42.5	13:38:27		42.5	42.5
42.9	13:38:28		42.9	42.9
41.6	13:38:29		41.6	41.6
41.5	13:38:30		41.5	41.5
41.3	13:38:31		41.3	41.3
40.9	13:38:32		40.9	40.9
42.7	13:38:33		42.7	42.7
44.2	13:38:34		44.2	44.2
46.1	13:38:35		46.1	46.1
46.3	13:38:36		46.3	46.3
46.1	13:38:37		46.1	46.1
43.6	13:38:38		43.6	43.6
43.1	13:38:39		43.1	43.1
43.0	13:38:40		43.0	43.0
41.8	13:38:41		41.8	41.8
42.6	13:38:42		42.6	42.6
44.2	13:38:43		44.2	44.2
43.5	13:38:44		43.5	43.5
44.3	13:38:45		44.3	44.3
46.1	13:38:46		46.1	46.1
45.4	13:38:47		45.4	45.4
44.7	13:38:48		44.7	44.7
42.4	13:38:49		42.4	42.4
42.7	13:38:50		42.7	42.7
44.3	13:38:51		44.3	44.3
45.8	13:38:52		45.8	45.8
45.9	13:38:53		45.9	45.9
45.2	13:38:54		45.2	45.2
44.7	13:38:55		44.7	44.7
45.8	13:38:56		45.8	45.8
45.6	13:38:57		45.6	45.6
48.1	13:38:58		48.1	48.1
49.0	13:38:59		49.0	49.0
48.0	13:39:00		48.0	48.0
47.6	13:39:01		47.6	47.6
47.3	13:39:02		47.3	47.3
46.3	13:39:03		46.3	46.3
45.9	13:39:04		45.9	45.9
45.2	13:39:05		45.2	45.2
47.1	13:39:06		47.1	47.1
45.3	13:39:07		45.3	45.3
44.2	13:39:08		44.2	44.2
44.6	13:39:09		44.6	44.6
46.0	13:39:10		46.0	46.0
44.6	13:39:11		44.6	44.6
44.3	13:39:12		44.3	44.3
44.1	13:39:13		44.1	44.1
42.8	13:39:14		42.8	42.8
42.8	13:39:15		42.8	42.8
41.6	13:39:16	51.3	41.6	41.6
43.6	13:39:17	51.2	43.6	43.6
43.0	13:39:18	51.2	43.0	43.0
41.0	13:39:19	51.2	41.0	41.0
39.4	13:39:20	51.1	39.4	39.4
37.9	13:39:21	51.0	37.9	37.9
37.9	13:39:22	50.9	37.9	37.9
39.1	13:39:23	50.9	39.1	39.1
39.6	13:39:24	50.9	39.6	39.6
40.8	13:39:25	50.9	40.8	40.8
41.9	13:39:26	50.8	41.9	41.9
42.2	13:39:27	50.8	42.2	42.2
41.9	13:39:28	50.8	41.9	41.9
42.0	13:39:29	50.7	42.0	42.0
42.9	13:39:30	50.7	42.9	42.9
42.2	13:39:31	50.7	42.2	42.2
40.4	13:39:32	50.7	40.4	40.4
39.7	13:39:33	50.7	39.7	39.7
41.2	13:39:34	50.7	41.2	41.2
41.4	13:39:35	50.7	41.4	41.4
41.5	13:39:36	50.7	41.5	41.5
42.9	13:39:37	50.7	42.9	42.9
44.4	13:39:38	50.7	44.4	44.4
45.8	13:39:39	50.7	45.8	45.8
47.0	13:39:40	50.7	47.0	47.0
46.1	13:39:41	50.7	46.1	46.1
44.2	13:39:42	50.7	44.2	44.2
44.6	13:39:43	50.7	44.6	44.6
44.6	13:39:44	50.7	44.6	44.6
44.4	13:39:45	50.7	44.4	44.4
44.5	13:39:46	50.7	44.5	44.5
44.8	13:39:47	50.7	44.8	44.8
46.2	13:39:48	50.7	46.2	46.2
48.0	13:39:49	50.7	48.0	48.0
47.9	13:39:50	50.7	47.9	47.9
47.9	13:39:51	50.7	47.9	47.9
47.8	13:39:52	50.7	47.8	47.8
46.7	13:39:53	50.6	46.7	46.7
44.1	13:39:54	50.6	44.1	44.1
43.3	13:39:55	50.6	43.3	43.3
44.1	13:39:56	50.6	44.1	44.1
45.4	13:39:57	50.6	45.4	45.4
46.4	13:39:58	50.6	46.4	46.4
45.0	13:39:59	50.6	45.0	45.0
44.3	13:40:00	50.6	44.3	44.3
45.2	13:40:01	50.5	45.2	45.2
43.3	13:40:02	50.5	43.3	43.3
44.6	13:40:03	50.5	44.6	44.6
42.9	13:40:04	50.5	42.9	42.9
43.1	13:40:05	50.5	43.1	43.1
41.8	13:40:06	50.5	41.8	41.8
39.8	13:40:07	50.5	39.8	39.8
39.6	13:40:08	50.5	39.6	39.6
41.3	13:40:09	50.5	41.3	41.3
41.8	13:40:10	50.5	41.8	41.8
41.4	13:40:11	50.5	41.4	41.4
40.8	13:40:12	50.5	40.8	40.8
40.8	13:40:13	50.2	40.8	40.8
40.9	13:40:14	49.6	40.9	40.9
48.6	13:40:15	49.4	48.6	48.6
46.6	13:40:16	49.3	46.6	46.6
45.0	13:40:17	49.3	45.0	45.0
45.5	13:40:18	49.3	45.5	45.5
46.0	13:40:19	49.3	46.0	46.0
45.4	13:40:20	49.3	45.4	45.4
46.8	13:40:21	49.2	46.8	46.8
46.4	13:40:22	49.2	46.4	46.4
45.7	13:40:23	49.2	45.7	45.7
44.7	13:40:24	49.1	44.7	44.7
45.0	13:40:25	48.5	45.0	45.0
46.6	13:40:26	48.3	46.6	46.6
47.7	13:40:27	48.2	47.7	47.7
46.6	13:40:28	48.2	46.6	46.6
49.4	13:40:29	48.2	49.4	49.4
52.5	13:40:30	48.1	52.5	52.5
52.3	13:40:31	48.1	52.3	52.3
51.5	13:40:32	48.1	51.5	51.5
48.7	13:40:33	48.0	48.7	48.7
46.0	13:40:34	47.6	46.0	46.0
48.0	13:40:35	47.4	48.0	48.0
46.9	13:40:36	47.3	46.9	46.9
46.4	13:40:37	47.2	46.4	46.4
45.6	13:40:38	47.1	45.6	45.6
44.3	13:40:39	46.9	44.3	44.3
42.3	13:40:40	46.9	42.3	42.3
40.5	13:40:41	46.9	40.5	40.5
40.0	13:40:42	46.9	40.0	40.0
41.0	13:40:43	46.9	41.0	41.0
40.9	13:40:44	46.9	40.9	40.9
41.4	13:40:45	46.9	41.4	41.4
43.5	13:40:46	46.9	43.5	43.5
44.7	13:40:47	46.9	44.7	44.7
47.4	13:40:48	46.9	47.4	47.4

APPENDIX C

RCNM Model Construction Noise Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/17/2021
Case Description: Brawley Solar Facility - Site Preparation

				---- Receptor #1 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Home to Northwest	Residential	66.5	66.5	64.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	2900	0
Drill Rig Truck	No	20		79.1	2900	0
Excavator	No	40		80.7	2900	0
Excavator	No	40		80.7	2900	0
Dozer	No	40		81.7	2900	0
Dozer	No	40		81.7	2900	0
Dozer	No	40		81.7	2900	0
Tractor	No	40	84		2900	0
Front End Loader	No	40		79.1	2900	0
Backhoe	No	40		77.6	2900	0
Tractor	No	40	84		2900	0

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck	43.9	36.9	N/A	N/A	N/A	N/A
Drill Rig Truck	43.9	36.9	N/A	N/A	N/A	N/A
Excavator	45.4	41.5	N/A	N/A	N/A	N/A
Excavator	45.4	41.5	N/A	N/A	N/A	N/A
Dozer	46.4	42.4	N/A	N/A	N/A	N/A
Dozer	46.4	42.4	N/A	N/A	N/A	N/A
Dozer	46.4	42.4	N/A	N/A	N/A	N/A
Tractor	48.7	44.8	N/A	N/A	N/A	N/A
Front End Loader	43.8	39.9	N/A	N/A	N/A	N/A
Backhoe	42.3	38.3	N/A	N/A	N/A	N/A
Tractor	48.7	44.8	N/A	N/A	N/A	N/A
Total	**49**	**52**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/17/2021
Case Description: Brawley Solar Facility - Site Preparation

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Home to Northeast	Residential	60.2	60.2	55.6

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	2900	0
Drill Rig Truck	No	20		79.1	2900	0
Excavator	No	40		80.7	2900	0
Excavator	No	40		80.7	2900	0
Dozer	No	40		81.7	2900	0
Dozer	No	40		81.7	2900	0
Dozer	No	40		81.7	2900	0
Tractor	No	40	84		2900	0
Front End Loader	No	40		79.1	2900	0
Backhoe	No	40		77.6	2900	0
Tractor	No	40.0	84		2900	0

Equipment		Results Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Drill Rig Truck		43.9	36.9	N/A	N/A	N/A	N/A
Drill Rig Truck		43.9	36.9	N/A	N/A	N/A	N/A
Excavator		45.4	41.5	N/A	N/A	N/A	N/A
Excavator		45.4	41.5	N/A	N/A	N/A	N/A
Dozer		46.4	42.4	N/A	N/A	N/A	N/A
Dozer		46.4	42.4	N/A	N/A	N/A	N/A
Dozer		46.4	42.4	N/A	N/A	N/A	N/A
Tractor		48.7	44.8	N/A	N/A	N/A	N/A
Front End Loader		43.8	39.9	N/A	N/A	N/A	N/A
Backhoe		42.3	38.3	N/A	N/A	N/A	N/A
Tractor		48.7	44.8	N/A	N/A	N/A	N/A
	Total	**49**	**52**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/17/2021
Case Description: Brawley Solar Facility - Site Preparation

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Home to Southeast	Residential	62.0	62.0	56.2

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	2850	0
Drill Rig Truck	No	20		79.1	2850	0
Excavator	No	40		80.7	2850	0
Excavator	No	40		80.7	2850	0
Dozer	No	40		81.7	2850	0
Dozer	No	40		81.7	2850	0
Dozer	No	40		81.7	2850	0
Tractor	No	40	84		2850	0
Front End Loader	No	40		79.1	2850	0
Backhoe	No	40		77.6	2850	0
Tractor	No	40	84		2850	0

		Calculated (dBA)		Results	Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck		44.0	37.0	N/A	N/A	N/A	N/A
Drill Rig Truck		44.0	37.0	N/A	N/A	N/A	N/A
Excavator		45.6	41.6	N/A	N/A	N/A	N/A
Excavator		45.6	41.6	N/A	N/A	N/A	N/A
Dozer		46.6	42.6	N/A	N/A	N/A	N/A
Dozer		46.6	42.6	N/A	N/A	N/A	N/A
Dozer		46.6	42.6	N/A	N/A	N/A	N/A
Tractor		48.9	44.9	N/A	N/A	N/A	N/A
Front End Loader		44.0	40.0	N/A	N/A	N/A	N/A
Backhoe		42.4	38.5	N/A	N/A	N/A	N/A
Tractor		48.9	44.9	N/A	N/A	N/A	N/A
	Total	**49**	**52**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/17/2021
Case Description: Brawley Solar Facility - PV System Installation & Testing

		Baselines (dBA)		**---- Receptor #1 ----**
Description	Land Use	Daytime	Evening	Night
Nearest Home to Northwest	Residential	66.5	66.5	64.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	2900	0
Man Lift	No	20		74.7	2900	0
Compressor (air)	No	40		77.7	2900	0
Crane	No	16		80.6	2900	0
Crane	No	16		80.6	2900	0
Gradall	No	40		83.4	2900	0
Gradall	No	40		83.4	2900	0
Gradall	No	40		83.4	2900	0
Generator	No	50		80.6	2900	0
Grader	No	40	85		2900	0
Flat Bed Truck	No	40		74.3	2900	0
Flat Bed Truck	No	40		74.3	2900	0
Tractor	No	40.0	84		2900	0
Front End Loader	No	40		79.1	2900	0
Backhoe	No	40		77.6	2900	0
Welder / Torch	No	40		74	2900	0

		Calculated (dBA)		Results	Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift		39.4	32.4	N/A	N/A	N/A	N/A
Man Lift		39.4	32.4	N/A	N/A	N/A	N/A
Compressor (air)		42.4	38.4	N/A	N/A	N/A	N/A
Crane		45.3	37.3	N/A	N/A	N/A	N/A
Crane		45.3	37.3	N/A	N/A	N/A	N/A
Gradall		48.1	44.2	N/A	N/A	N/A	N/A
Gradall		48.1	44.2	N/A	N/A	N/A	N/A
Gradall		48.1	44.2	N/A	N/A	N/A	N/A
Generator		45.4	42.4	N/A	N/A	N/A	N/A
Grader		49.7	45.8	N/A	N/A	N/A	N/A
Flat Bed Truck		39.0	35.0	N/A	N/A	N/A	N/A
Flat Bed Truck		39.0	35.0	N/A	N/A	N/A	N/A
Tractor		48.7	44.8	N/A	N/A	N/A	N/A
Front End Loader		43.8	39.9	N/A	N/A	N/A	N/A
Backhoe		42.3	38.3	N/A	N/A	N/A	N/A
Welder / Torch		38.7	34.8	N/A	N/A	N/A	N/A
	Total	**50**	**53**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/17/2021
Case Description: Brawley Solar Facility - PV System Installation & Testing

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Home to Northeast	Residential	60.2	60.2	55.6

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	2900	0
Man Lift	No	20		74.7	2900	0
Compressor (air)	No	40		77.7	2900	0
Crane	No	16		80.6	2900	0
Crane	No	16		80.6	2900	0
Gradall	No	40		83.4	2900	0
Gradall	No	40		83.4	2900	0
Gradall	No	40		83.4	2900	0
Generator	No	50		80.6	2900	0
Grader	No	40	85		2900	0
Flat Bed Truck	No	40		74.3	2900	0
Flat Bed Truck	No	40		74.3	2900	0
Tractor	No	40	84		2900	0
Front End Loader	No	40		79.1	2900	0
Backhoe	No	40		77.6	2900	0
Welder / Torch	No	40		74	2900	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Man Lift	39.4	32.4	N/A	N/A	N/A	N/A
Man Lift	39.4	32.4	N/A	N/A	N/A	N/A
Compressor (air)	42.4	38.4	N/A	N/A	N/A	N/A
Crane	45.3	37.3	N/A	N/A	N/A	N/A
Crane	45.3	37.3	N/A	N/A	N/A	N/A
Gradall	48.1	44.2	N/A	N/A	N/A	N/A
Gradall	48.1	44.2	N/A	N/A	N/A	N/A
Gradall	48.1	44.2	N/A	N/A	N/A	N/A
Generator	45.4	42.4	N/A	N/A	N/A	N/A
Grader	49.7	45.8	N/A	N/A	N/A	N/A
Flat Bed Truck	39.0	35.0	N/A	N/A	N/A	N/A
Flat Bed Truck	39.0	35.0	N/A	N/A	N/A	N/A
Tractor	48.7	44.8	N/A	N/A	N/A	N/A
Front End Loader	43.8	39.9	N/A	N/A	N/A	N/A
Backhoe	42.3	38.3	N/A	N/A	N/A	N/A
Welder / Torch	38.7	34.8	N/A	N/A	N/A	N/A
Total	**50**	**53**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/17/2021
Case Description: Brawley Solar Facility - PV System Installation & Testing

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Home to Southeast	Residential	62.0	62.0	56.2

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	2850	0
Man Lift	No	20		74.7	2850	0
Compressor (air)	No	40		77.7	2850	0
Crane	No	16		80.6	2850	0
Crane	No	16		80.6	2850	0
Gradall	No	40		83.4	2850	0
Gradall	No	40		83.4	2850	0
Gradall	No	40		83.4	2850	0
Generator	No	50		80.6	2850	0
Grader	No	40	85		2850	0
Flat Bed Truck	No	40		74.3	2850	0
Flat Bed Truck	No	40		74.3	2850	0
Tractor	No	40	84		2850	0
Front End Loader	No	40		79.1	2850	0
Backhoe	No	40		77.6	2850	0
Welder / Torch	No	40		74	2850	0

		Calculated (dBA)		Results		Noise Limits (dBA)	
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift		39.6	32.6	N/A	N/A	N/A	N/A
Man Lift		39.6	32.6	N/A	N/A	N/A	N/A
Compressor (air)		42.6	38.6	N/A	N/A	N/A	N/A
Crane		45.4	37.5	N/A	N/A	N/A	N/A
Crane		45.4	37.5	N/A	N/A	N/A	N/A
Gradall		48.3	44.3	N/A	N/A	N/A	N/A
Gradall		48.3	44.3	N/A	N/A	N/A	N/A
Gradall		48.3	44.3	N/A	N/A	N/A	N/A
Generator		45.5	42.5	N/A	N/A	N/A	N/A
Grader		49.9	45.9	N/A	N/A	N/A	N/A
Flat Bed Truck		39.1	35.2	N/A	N/A	N/A	N/A
Flat Bed Truck		39.1	35.2	N/A	N/A	N/A	N/A
Tractor		48.9	44.9	N/A	N/A	N/A	N/A
Front End Loader		44.0	40.0	N/A	N/A	N/A	N/A
Backhoe		42.4	38.5	N/A	N/A	N/A	N/A
Welder / Torch		38.9	34.9	N/A	N/A	N/A	N/A
	Total	**50**	**53**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/17/2021
Case Description: Brawley Solar Facility - Site cleanup & Restoration

		Baselines (dBA)		**---- Receptor #1 ----**
Description	Land Use	Daytime	Evening	Night
Nearest Home to Northwest	Residential	66.5	66.5	64.9

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		2900	0
Grader	No	40	85		2900	0
Dozer	No	40		81.7	2900	0
Dozer	No	40		81.7	2900	0
Front End Loader	No	40		79.1	2900	0
Front End Loader	No	40		79.1	2900	0
Tractor	No	40	84		2900	0
Backhoe	No	40		77.6	2900	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		49.7	45.8	N/A	N/A	N/A	N/A
Grader		49.7	45.8	N/A	N/A	N/A	N/A
Dozer		46	42	N/A	N/A	N/A	N/A
Dozer		46.4	42.4	N/A	N/A	N/A	N/A
Front End Loader		43.8	39.9	N/A	N/A	N/A	N/A
Front End Loader		43.8	39.9	N/A	N/A	N/A	N/A
Tractor		48.7	44.8	N/A	N/A	N/A	N/A
Backhoe		42.3	38.3	N/A	N/A	N/A	N/A
	Total	**50**	**52**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/17/2021
Case Description: Brawley Solar Facility - Site cleanup & Restoration

				---- Receptor #2 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Home to Northeast	Residential	60	60	55.6

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		2900	0
Grader	No	40	85		2900	0
Dozer	No	40		81.7	2900	0
Dozer	No	40		81.7	2900	0
Front End Loader	No	40.0		79.1	2900	0
Front End Loader	No	40.0		79.1	2900	0
Tractor	No	40.0	84		2900	0
Backhoe	No	40.0		77.6	2900	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		49.7	45.8	N/A	N/A	N/A	N/A
Grader		49.7	45.8	N/A	N/A	N/A	N/A
Dozer		46.4	42.4	N/A	N/A	N/A	N/A
Dozer		46.4	42.4	N/A	N/A	N/A	N/A
Front End Loader		43.8	39.9	N/A	N/A	N/A	N/A
Front End Loader		43.8	39.9	N/A	N/A	N/A	N/A
Tractor		48.7	44.8	N/A	N/A	N/A	N/A
Backhoe		42.3	38.3	N/A	N/A	N/A	N/A
	Total	**50**	**52**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/17/2021
Case Description: Brawley Solar Facility - Site cleanup & Restoration

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Home to Southeast	Residential	62.0	62.0	56.2

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		2850	0
Grader	No	40	85		2850	0
Dozer	No	40		81.7	2850	0
Dozer	No	40		81.7	2850	0
Front End Loader	No	40		79.1	2850	0
Front End Loader	No	40		79.1	2850	0
Tractor	No	40	84		2850	0
Backhoe	No	40		77.6	2850	0

		Calculated (dBA)		Results			
				Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		49.9	45.9	N/A	N/A	N/A	N/A
Grader		49.9	45.9	N/A	N/A	N/A	N/A
Dozer		46.6	42.6	N/A	N/A	N/A	N/A
Dozer		46.6	42.6	N/A	N/A	N/A	N/A
Front End Loader		44.0	40.0	N/A	N/A	N/A	N/A
Front End Loader		44.0	40.0	N/A	N/A	N/A	N/A
Tractor		48.9	44.9	N/A	N/A	N/A	N/A
Backhoe		42.4	38.5	N/A	N/A	N/A	N/A
	Total	**50**	**52**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.